THE

MEDICAL EXAMINER,

AND

RECORD OF MEDICAL SCIENCE.

NEW SERIES.—NO. XCIX.—MARCH, 1853.

ORIGINAL COMMUNICATIONS.

Experimental Researches applied to Physiology and Pathology.

By E. BROWN-SÉQUARD, M. D., of Paris.

(Continued.)

XXII.—ON THE INCREASE OF ANIMAL HEAT AFTER INJURIES OF THE NERVOUS SYSTEM.

In another part of this series* I have endeavored to prove that the local increase of temperature following the section of the sympathetic nerve, is the result of paralysis of the blood-vessels. I will now relate some other cases in which a local increase of temperature takes place after various other injuries of the nervous system, and apparently in consequence of the same cause.

It was known, long ago, that an injury to the nervous system might be followed by a partial or even a general elevation of animal heat. Sir B. Brodie says,† Mr. Chossat has published an account of some experiments on animals, in which he found

* Medical Examiner, August 1853, p. 489.

† Medico-Chirurg. Transactions, 1837. Vol. xx., p. 132.

that the division of the superior portion of the spinal cord produced a remarkable evolution of animal heat, so that it was raised much above the natural standard. I have made experiments similar to those of Mr. Chossat, and have met with similar results. I have also seen several cases in which an accidental injury of the spinal cord has produced the same effect. The most remarkable of them was that of a man who was admitted into St. George's Hospital, in whom there was a forcible separation of the fifth and sixth cervical vertebræ, attended with an effusion of blood within the theca vertebralis, and laceration of the lower part of the cervical portion of the spinal cord. Respiration was performed by the diaphragm only, and, of course, in a very imperfect manner. The patient died at the end of twenty-two hours; and, for some time previous to his death, he breathed at very long intervals, the pulse being weak and the countenance livid. At last there were not more than five or six inspirations in a minute. Nevertheless, when the ball of a thermometer was placed between the scrotum and the thigh, the mercury rose to 111° of Fahrenheit's scale. Immediately after death, the temperature was examined in the same manner, and found to be still the same.

Brodie was mistaken as regards the experiments of Chossat. Instead of finding an increase in the animal heat after the section of the inferior portion of the spinal cord, Chossat found a considerable diminution in the temperature of dogs. But in two cases, where the spinal cord was divided at about the level of the last dorsal vertebra, in dogs, Chossat* found an increase in the animal heat. In one of these experiments, the increase was from 41°.1 to 41°.5 Cents., (105°.98 to 106°.7 Fahr.) In the other, the increase was from 41°.1 to 42°.9 Cs., (105°.98 to 109°.6.)

Dr. Macartney† found an increase in the temperature of parts paralyzed in consequence of the division of their nerve. H. Nasse,‡ who made many experiments on this subject, some-

Mèm. sur l' influence du syst. nerv. sur la chal. anim. Thèse de Paris. No. 126,—1820, p. 35. Exps. xxiii and xxiv.

† Treatise on Inflammation, 1838, p. 13.

‡ Vutersurchunger zur Physiol. und Pathol., 1839, v. ii., p. 190.

times observed an elevation in the temperature of the paralyzed parts after the division of the sciatic nerve, or after the partial destruction of the spinal cord.

In more than twenty experiments, I only once found an increase in the temperature of the leg of a guinea-pig, after the section of the sciatic nerve. This increase lasted about two or three days after the operation, and it was of two degrees Fahr.

After a complete transversal section of the spinal cord in the lumbar region, in birds and mammals, I found, repeatedly, an increase of one, two or three degrees Fahr. in the temperature of the paralyzed parts. I ascertained that it is not in consequence of an increase of the general temperature of the animal that such an increase exists. It is to be found only in the paralyzed parts.

I never found any increase of temperature after a complete transversal section of the spinal cord, either in the cervical or in the dorsal region.

After a section of a lateral half of the spinal cord, at the level of one of the three or four last dorsal vertebræ, I have almost constantly found an increase in the temperature of the posterior limb on the side of the section. The elevation varied from one to four degrees Fahr. On the contrary, there was a diminution of from one to five degrees Fahr. in the temperature of the other leg. In some cases, in consequence of the increase of temperature on one side and its diminution on the other side, I found a difference of six or seven degrees Fahr. in the temperature of the two limbs. It is very remarkable that, together with the increase of temperature in one limb, there is an augmentation of sensibility, and with the diminution of temperature in the other limb, there is also a diminution of sensibility.

Since the publication of the results of my experiments on the sympathetic nerve, I have performed them many other times, and I have found that the result is not so constant as Dr. A. Barnard and myself had admitted. In some rabbits there was no decided increase in the vascularization and in the temperature of the face. I ought to say that, in these cases, the two ears were already warm, and very vascular before the operation. I have found, also, that generally in very cold weather the ex-

tremity of the ear of rabbits, on the side of the section of the sympathetic nerve, remains cold.

From my experiments and from the observations and experiments of Brodie, Chossat, H. Nasse and Macartney, it results that the following opinion of Dr. Cl. Bernard is incorrect. He says: "It is known that injuries of the cerebro-spinal nervous system constantly produce a total or a partial diminution in the temperature of animals, either when a nerve has been divided or when the injury is made on the nervous centres."* He says also that an injury of the sympathetic nerve produces a very rapid increase of temperature; so that the sympathetic nerve and the cerebro-spinal nervous system are considered by Dr. Bernard as completely different, one from the other, as to the influence on animal heat when they are injured. The one should increase and the other diminish animal heat.

The truth is that these two effects—increase and diminution—may exist after an injury of either the sympathetic or the cerebro-spinal nervous system ;† and, in both cases, the increase may exist, at first, and be followed by a diminution.

Before pointing out the co-existence of certain facts with the increase or diminution of animal heat, I think it necessary to establish a distinction between the cases of increase of animal heat after injuries of the nervous system.

In some cases (as those related by Brodie) there has been an increase of temperature above the natural standard of animal heat. These are very extraordinary and very rare cases, and it is not my intention to attempt to explain them here. In the cases, the degree of temperature, although increased in some other paralyzed parts, has not been above the normal degree of blood heat. This is the only kind of increase of animal heat that I have observed, and this I will attempt to explain.

I have found that,—*ceteris paribus*,—the more the arteries and capillaries are dilated, the higher is the degree of temperature. This law is proved by the following facts:

1st. In all the cases of paralysis (from whatever cause) where I have found a diminution in the degree of temperature

*Gaz. Medic. de Paris, Vol. 7, No. 14, p. 227.

† Vide: Chossat, *loco cit.*, pp. 41-46.

LIBRARY OF THE UNIVERSITY OF PENNSYLVANIA. PHILADELPHIA

of a paralyzed part, the arteries and capillaries were evidently much contracted.

2d. In the cases where the temperature was normal, the blood-vessels were of their natural size.

3d. In the cases where the temperature was increased, I have constantly found the arteries and capillaries enlarged.

4th. In some cases, I have found the same changes occurring in the temperature and in the blood-vessels. The temperature at first was greater than usual and the blood-vessels dilated; afterwards both the temperature and blood-vessels became natural; and, at last, the temperature becoming lower than usual, the size of the blood-vessels became smaller.

I need not say that the changes occurring in paralyzed parts in accordance with the size of the blood-vessels were the results of the differences in the amount of blood passing in these parts.

Now, it will be asked how, in certain cases of palsy, the size of the blood-vessels is larger than usual, and smaller in other cases. I cannot explain how it is so, but I can assert that it is a fact.

From the facts and reasonings related in this article, I draw the following conclusions:

1st. An injury of the nervous system may produce in the parts, which then become paralyzed, either an increase or diminution of temperature.

2d. The sympathetic nerve and the cerebro-spinal nervous system appear not to be different one from the other, in this respect.

3d. The degree of temperature of paralyzed parts depends on the quantity of blood they receive; and this quantity varies according to the size of the arteries and capillaries of these parts.

4th. It is a fact, hitherto unexplained, that the arteries and capillaries may be either dilated, normal, or contracted in paralyzed parts.

XXIII.—CAUSE OF THE STOPPING OF THE HEART'S MOVEMENTS, PRODUCED BY AN EXCITATION OF THE MEDULLA OBLONGATA OR THE PAR VAGUM.

E. H. and E. Weber have discovered a singular fact, hitherto

unexplained. When the par vagum or the medulla oblongata is excited by a powerful electro-magnetic current, in a living animal, the movements of the heart are suddenly stopped. This should be what is known for all motor nerves and muscles, if the cessation of the movements of the heart was the result of a permanent contraction. But the heart is not at all contracted, and, on the contrary, it remains perfectly placid.

This is entirely different from what we know to be the case for other muscles.

I have found that a violent mechanical excitation of the medulla oblongata produces also the same stopping of the heart's action.

Is the heart in a state of rest in consequence of a loss of its irritability or of an interruption of the excitation necessary to its action? The following fact proves that this second opinion is the right one. When the heart is stopped, every direct excitation upon it produces some beatings, and then, its irritability appears to be entire. The stopping, consequently, depends on the absence of excitation.

The cause exciting the heart to beat is in the blood contained in the capillaries of this organ, as I will try to prove in another article. Now, if we suppose that the galvanization of the par vagum produces a complete constriction of the capillaries of the heart, it is easy to understand why the heart is stopped: it is because the excitation cannot take place on account of the expulsion of the blood from the capillaries.

It will be asked on what ground we base the supposition that the capillaries are so contracted that they prevent entirely, or nearly so, the passage of the blood. I will answer:

1st. That it is known that a galvanization of certain nerves (and I have discovered that it is so with the capillaries of the face and ear when the sympathetic nerve is galvanized) may produce a considerable constriction of capillaries.

2d. That it is known that the nerves of the heart are distributed much more to its blood-vessels than to its muscular tissue.

3d. That, by our supposition, we place the fact of the stopping of the heart's movements among the well known facts, that an excitation of a molar nerve produces a contraction of the muscles to which it is distributed; and, therefore, we are not obliged to admit

that an excitation of a nerve is able to produce directly either a contraction of or the cessation of existing contractions.

There is a practical consequence to be drawn from the fact that in the case of an excitation of the medulla oblongata, the stopping of the heart is not produced by a loss of irritability of this organ.

Many cases of syncope are produced by a stopping of the heart's movements in consequence of the influence of an emotion on the medulla oblongata. In these cases it would be of very great importance to excite directly the beatings of the heart, either by compression of the chest or by an application of galvanism.

We ought to say that galvanism applied directly to the heart increases its beatings instead of diminishing them.

XXIV.—ON A SINGULAR DISTURBANCE IN THE VOLUNTARY MOVEMENTS, APPARENTLY PRODUCED BY AN ACTION OF ATMOSPHERIC AIR ON THE GRAY MATTER OF THE SPINAL CORD, IN BIRDS.

Some years ago I discovered that after the removal of a large quantity of the gray matter that exists in birds, on the posterior surface of the spinal cord, in the lumbar region, a great disturbance took place in the voluntary movements. I attributed this disturbance to the loss of gray matter. I have found, three or four months since, that the same disturbance existed in the voluntary movements after I had merely laid bare the gray matter, and immediately after it had been exposed to the action of air.

I am perfectly satisfied that it is not in consequence of a mechanical excitation of the spinal cord, accidentally produced during the operation of the removal of the bones and membranes, that this disorder takes place.

When the spinal cord is laid bare elsewhere than in the region of the lumbar enlargement—that is, in any place where the white substance covers completely the gray matter—there is no disturbance produced in the voluntary movements.

That disturbance very much resembles the so-called titubation which exists after either the removal of the cerebellum or the section of muscles of the posterior part of the neck. At each movement of progression, the animal tends to fall either

forwards, backwards, or laterally. It does not fall completely, but is obliged, in order to avoid falling, to make use of its wings, its tail and its beak.

(To be continued.)

On the Treatment of Tubercular Meningitis. By O. C. GIBBS, M. D., of Lake Co., Ohio.

The time was, and at no very distant date, when all diseases of the brain, occurring in children, accompanied with, or terminating in, an effusion of fluid into the ventricles of that organ, or between its investing membranes, were denominated Acute Hydrocephalus. And perhaps it would not be too much to say that diseases unaccompanied with that symptom, or without that termination, have been thus classified, irrespective of their pathological conditions.

Dr. Marshall Hall was perhaps the first who divided the so-called acute hydrocephalus into the true and spurious disease, established their non-identity, and proved the diversity of their pathology. The distinction drawn has ever since been practically recognized by the profession.

Recently another division has been made in the disease usually known as hydrocephalus. To whom the honor is due, is to me, immaterial. Dr. West says, "We are led to the conclusion that inflammation of the brain occurs in early life under two different conditions. It now and then comes on in previously healthy children, but occurs much oftener in connection with the tuberculous cachexia, or as the *result* of tubercular deposit in the brain or its membranes." (Lectures on Diseases of Children, p. 58.) But it would seem that he has failed to take practical advantage of the conclusion here expressed; for it appears to me that the occurrence of hydrocephalus in the robust and healthy must depend upon idiopathic meningeal or meningeo-cerebral inflammation; in the scrofulous cachexia the inflammatory action is caused by, and superadded to, the previously existing tubercular disposition. The inflammatory action is usually sthenic in the one case and asthenic in the other. Dr. West is by no means alone in his conclusion, though perhaps he has more distinctly stated it than another writer, whose opinions I have had an opportunity of examining. Dr. Watson says, "The grand predis-

posing cause of acute hydrocephalus is certainly the scrofulous diathesis, and this is why we see the complaint run so often in families; so that one child having died of that disease, affords much ground for apprehending that others, belonging to the same family, will become victims to it." Yet upon the same page he says: "I need not, I conceive, take any further pains to convince you that the disease is essentially inflammatory. We are inevitably led to that conclusion by the *symptoms*, which nearly resemble those that occur when undoubted inflammation has arisen from injuries of the head; by the *appearances on dissection*, which are *always* such as inflammation may have produced," &c. (Watson's Lectures, p. 270.) Dr. Condie, and others, concur in the opinion expressed in the quotation from Dr. West. Condie says, "Subacute meningitis occurs chiefly in delicate, scrofulous children, especially in those distinguished by great irritability of the brain and nervous system." (Diseases of Children, p. 385.) Again, (p. 390,) he says, "A strong predisposition to the occurrence of chronic meningitis in the *tubercular form*, which, in children, is by far the most frequent, is manifestly hereditary or constitutional." Yet Dr. Condie, in my opinion, correctly denies the sweeping assertion of Dr. Watson, in reference to the post mortem appearances; for he says, "Traces of inflammation in the membranes or substance of the brain, or in other words increased vascularity, or thickening of the membranes, and pseudo-membranes, or purulent effusion, are by no means invariably detected in cases of chronic meningitis." (Diseases of Children, p. 390.) But admitting that the products of inflammation were always present in the brain or its membranes, in cases of death from tubercular meningitis, it certainly would not prove the disease to be essentially and primarily inflammatory; for who does not know, that in cases of death from phthisis, the lungs contain the products of inflammation as invariably as the membranes of the brain in tubercular meningitis. Dr. Simon says, "Tubercle, in itself, is clearly no product of inflammation, but is apt to act as an irritant of surrounding textures, and invite the addition of their inflammatory exudations." (Lectures on Pathology, p. 135.) Hence, we may conclude the disease under consideration to be essentially tubercular, and requiring, in part at least, remedies appropriate for the scrofulous diathesis.

If the above views be correct, it would seem apparent that the remedial means usually resorted to, bloodletting, purgatives, mercurials, &c., are not those best adapted to subdue the disease.

In the country the disease is not of very frequent occurrence. I have seen but four cases, in as many years of medical practice and observation. In these four, one only proved fatal, and in that case, convulsions, hemiplegia and loss of vision occurred before medical advice was taken.

In the three cases of recovery, *Iodide of Potassium* was the remedy depended upon.

The following case, condensed from my note book, is a fair sample of the cases alluded to, and well illustrates the beneficial effects of the iodine treatment.

August 11*th*, 1849. I was called to see a female child, aged 17 months. She was the fourth child of scrofulous parents; the two immediately preceding having died of hydrocephalus, at the ages respectively of 28 and 26 months. On the father's side, phthisis was a hereditary disease, on the mother's asthma and cancer. The child was decidedly scrofulous, and presented all the usual symptoms of chronic meningitis in a marked degree. The two preceding children had been treated by a very judicious practitioner; the treatment made use of is unknown to me, but bleeding from the temporal vein was the last resort.

I advised in this case tepid bathing daily; simple, easily digested, but nutritious articles of diet, (which last direction was not attended to,) and such articles as seemed best adapted to remove the derangement of the stomach and bowels to be temporarily resorted to, intermitted and resumed as circumstances might require. The following was ordered and persevered in, with one intermission of two weeks, for about four months.

℞ Iodid. of Potassium gr. xvj.
Sacch. alb. pur. ʒij.
Aquæ ℥ij.

Mix; dose, a teaspoonful once a day, morning.

After two weeks, the patient began slowly to improve, and is now, more than three years since, to all appearances, perfectly well.

In one case, six months after apparent recovery, I was compelled to return to the Iodide of Potassium, which again effected an improvement that has since been permanent.

These cases are, of course, too few to establish the remedial virtues of the Iodide of Potassium in tubercular meningitis; but, if this hastily penned article shall induce others, who have more experience with the disease than myself, to give the remedy a fair trial, and report the result, it will accomplish all I desire.

Perry, Lake Co., Ohio, February 1*st*, 1853.

Cases Illustrative of the successful employment of Oil of Turpentine, in Puerperal Tympanitis, &c. By JOSEPH SMITH, M. D., of Danville, Kentucky.

I submit the following cases to the profession, in which the oil of turpentine was advantageously employed in various puerperal affections, accompanied by tympanitis, and symptoms of incipient metritis, or peritonitis. I do not advance that the cases in question were the typhoid puerperal fever; and my object is simply to call attention to what I deem the undoubted value of the remedy in question, in various forms of abdominal disturbance after labor.

1. Mrs. H. was confined July 10th, 1850. The birth was premature, but there was nothing unusual in the labor. She seemed to be doing well, until the next day; when, on calling, I found her abdomen much enlarged, and very tender, and painful. The lochial discharge was not suppressed; the pulse not over 85; and the skin not hot. Believing the case one of simple tympanitis, I directed the oil of turpentine and castor oil, of each a teaspoonfull every four hours, with fomentations to the abdomen.

After some three or four doses had been taken, the swelling and pain were almost entirely dissipated. There were some partial relapses on the 13th and 14th, which were readily relieved by a dose or two of the same mixture. This combination caused one or two actions from the bowels, more laxative than purgative.

2. Mrs. S. was confined May 21st, 1852, with a natural labor. On the third morning, the 23d, she imprudently rose in bed, and exerted herself. She was taken immediately with a most violent chill, which lasted some two or three hours. Some three hours after the attack I saw her, and found her with hot skin, pulse 120, thirsty, womb very hard, and exceedingly tender and pain-

ful. Abdomen not swelled, excepting in the right groin, which was also very tender to the touch. Great restlessness and anxiety of countenance. Lochia and milk both present. This patient I knew from constitutional peculiarities could not use mercurials or opiates; and, as I thought her too weak to bear the lancet, I concluded to try the oil of turpentine. She was directed to take thirty drops of this medicine every two hours, with hot fomentations to the bowels. It was given in a spoonfull of buttermilk.

Being with the case pretty constantly, I was enabled to watch its course. From the second dose, there was evidently some relief of pain and heat, in eight hours there was a decided change, in twenty-four hours there was scarcely a vestige of pain or fever. From that time the turpentine was gradually withdrawn. No relapse.

3. A negro woman of Mr. S.'s was confined about the 25th of July last. Did not attend her. She was reported as doing very well, until August 3d, when I was called to see her. I found her complaining much of her abdomen; the womb was enlarged, hard and tender; pulse 95; tongue coated; skin dry and warm. She had been complaining several days; said the lochia had ceased the night before; some milk. Gave calomel and ipecac. pretty freely, and directed fomentations.

August 4th. Found her in much the same condition as on yesterday, only the abdomen more enlarged and painful; stomach still irritable; no milk. Directed fomentations, spirits turpentine 30 drops, with a teaspoonful of paregoric every two hours. This was continued until the 6th, when the stomach became so irritable that the turpentine was suspended. But there was evident and great relief of pain, swelling and fever. Mustard, &c., soon relieved the stomach, and the patient gradually improved until the 12th and 13th; she had a slight relapse, when the turpentine and paregoric was again given, with early relief. This patient took one or two mercurial potions during her attack.

4. Mrs. S—— was confined, Sept. 15th, 1852. First child, easy labor. On the 22d was taken with a severe chill, followed

by much pain in abdomen; the womb hard and painful, and strong bearing down sensations, almost like strong labor pains. Of this there has been a good deal since her confinement. Her skin hot and moist; pulse ranging from 120 to 130; thirsty; very restless. Directed spirits turpentine, 30 drops, laudanum, 20 drops, every three hours; fomentations. In twenty-four hours the fever, pain and swelling were almost entirely gone. The bearing down tenesmus in this case was very peculiar. It was present at intervals for ten days after labor, sometimes slight, at others very severe. I could not account for it. There was no smell in the lochia indicating the remains of the membranes, or a clot. Nor could I detect anything of the kind by the examination per vaginam. Five grains camphor, and one-eighth morphine were the only means that gave relief. Larger doses of morphine narcotized her too much.

5. Mrs. G—— was confined Dec. 2d, 1852. First labor; did not last an hour. Being absent, another physician was called; birth before he arrived; he removed the after-birth. Calling next day, I found her suffering much from after pains, and some excitement. Left portions of morphine to be used as occasion demanded.

4*th*. Found her worse; high fever; pulse 130; skin hot; abdomen swelled and painful; womb hard; right groin giving much pain on pressure; bowels confined. Directed senna to be used until free purgation; then to use oil of turpentine, 25 drops, and sulphate of morphia one-fourth grain every three hours.

5*th*. Found her much easier, less pain and swelling; pulse still frequent; continue turpen. and morph., with fomentations. Blue mass at night, x. grs. 6*th*. Still some fever and pain; pulse 120; tongue coated; no operation; abdomen still enlarged, but not so tender. Omitted turpentine and morphia. Directed a purgative, and spirits nitre, and wine ipecac. every four hours; calomel, ipecac. and camphor pill at night. This case continued to alternate for some two weeks. The lochia continued, sometimes almost ceasing, and then too free. Secretion of milk ceased after the fifth day. The oil of turpentine was not used after the sixth day, excepting when there was much increase of the

pain of the womb, when a few doses almost invariably gave relief. The general treatment after this day was fomentations, warm hip bath, spirits nitre and ipecac., when there was fever. Laxatives.

Dec. 20. She was entirely convalescent.

6. Mrs. A——, confined February, 10, 1853. Tedious labor. Had pain in the side during labor. Twelfth morning was suddenly taken with severe pain in back; no fever. Camphor and turpentine on cotton applied to it, relieved the pain in the course of an hour. At noon the womb became very painful; skin hot; pulse 110; headache. Directed to take 30 drops spirits turpentine every two hours until relieved. She took three portions with entire relief of the womb.

Remarks.—The ages of these cases varied from eighteen to thirty-two. It will be seen that, in all of them but one, the turpentine was commenced early in the attack. The negro woman had been sick several days before she was seen. I am satisfied that this treatment will be successful as it is promptly used. If the remedy is delayed until the inflammation has advanced to structural lesion, it will have to be withdrawn, or, at any rate, combined with mercurials and alteratives with opium.

CLINICAL REPORTS.

Pennsylvania College, Ninth below Locust street. Service of Professor GILBERT.

Reported by W. H. GOBRECHT, M. D.

Jan. 22d. Congenital Varus.—Robert C——, (Case LXIII.) Dressings re applied. A gaiter was ordered to be made upon the steel sole, to lace in front, and to have a good catch on the heel, so that it may be easily applied and effectually worn.

Spinal Irritation.—Robert C——, (Case LXVII.) This patient has greatly improved since the introduction of the seton, having had but two paroxysms, and those of a lighter character

than usual, since his last visit. There seems to be, however, some slight epileptic complication, and as Prof. Gilbert has found great benefit to result from the use of Veratria in nervous affections, especially in neuralgia, given until the production of tingling in the fingers and nausea, the Iodide of Potassium is discontinued, and the following prescription ordered:

℞ Veratriæ gr. ij.
Ft. in pil. No. xvi.
S. one thrice daily.

When the patient feels that a paroxysm is approaching, an additional pill is to be taken.

Feb. 5th. Has had no decided spasm since his last appearance, and but slight tremors twice only; he walks better, looks better and has now no headache. He is directed to take a Veratria pill *four* times, instead of thrice daily, and an additional pill if any premonitory tremors are noticed; but if much nausea results, the medicine should be suspended.

Strabismus.—James C——, (Case LXIX.) Some pain being set up in the eye after the operation, the patient was purged and cold water applied with relief.

The parallelism of the globes is perfect.

Case LXXIII. *Results of extensive injuries.*—James F——, aged 11 years, whilst flying a kite on a three storied house, during the last summer, fell to the pavement and incurred a dislocation of the right radius and ulna, backward, at the elbow joint, with fracture of the coronoid process, also a compound fracture of the same bones below the joint, with anterior protrusion; there was a luxation of the left wrist backward, with compound fracture of radius and ulna near the elbow joint. In the consideration of the question of amputation, the almost utter helplessness of the patient which would follow the removal of both superior extremities, or if one only should be sacrificed, the serious impediment to success in the treatment of its stump from the condition of the other, determined an attempt to save both, which resulted thus: The right elbow is perfect, the radius is a very little impeded in rotation, and the length of the forearm undiminished. In regard to the left extremity, about an inch of the shaft of the radius was lost during treatment; there is partial rigidity of the fore and mid fingers, but good use of the thumb,

ring and little fingers, so that the patient can grasp with some facility, which doubtless will increase.

The treatment pursued after reduction and dressing the wounds, was by means of wooden splints padded with cotton. These were subsequently cut so as to afford access to the suppurating wounds, to which poultices were applied. Constitutional treatment of a rigidly antiphlogistic character became necessary during the first two weeks, after which there was no sympathetic fever.

Case LXXIV.—*Tumor on the Eye.*—Olivia C——, aged 49. Married. This tumor, about the size of a common white bean, is situated beneath the conjunctiva of the right eye, at the outer margin of the cornea, and in the antero-posterior axis of the globe; it seems to be firmly attached to the tissues beneath, and perhaps involves the cornea, which it partially overlies. Its appearance is that of a fibrous growth, although we may perhaps find it to be of a heterologous character. Its history is briefly this: When a child, the patient was struck and injured slightly in the spot now occupied by the tumor, with a stick, which caused no noticeable unpleasant result. About fifteen years since, the adventitious growth was first perceived, and gradually increased. Five years ago, Dr. Geo. M'Clellan removed it; the remaining ulcer cicatrized well, and nothing further was feared; however, it has recently reappeared, and for the last six months has grown more rapidly than at any previous time, causing, by its presence much irritation and frequent attacks of inflammation.

The patient is informed that its removal endangers the integrity of the eye, which may be pierced during the operation; besides which it may return, even if the procedure is successful. Nevertheless, if the tumor is allowed to remain, destruction of the organ is inevitable.

The patient being seated, a fine tenaculum was passed into the adventitious mass, but cut out at once; it was then shaved off by a sharp scalpel, and Nitrate of Silver applied to the cut surface.

The tumor is doubtless a fungous degeneration of a fibrous growth, having a deep-seated base, and we fear may eventually involve the entire eye, demanding its extirpation.

26th. Eye somewhat irritated, but no unpleasant symptoms. Nitrate of Silver reapplied.

Jan 29th. CASE LXXV. *Amaurosis.*—Albion D. S——, sanguineous temperament, aged 29, oyster dredger, was seized, three weeks since, with pain in the temples, and glimmering of vision, which became at first lightly and then more densely foggy, until, although able to see light, he has become unable to distinguish objects, the left eye failing first. His appetite is good and bowels regular.

Loss of vision may result from several causes, as from cataract, an opacity of the crystalline lens; from glaucoma, a disease of the vitreous humor; or from amaurosis, an affection of the retina.

In this case however, the pupil is dilated and is of a natural color, hence neither cataract nor glaucoma exist; no acute symptoms have been present, indicating retinitis; and no general paralysis indicating nervous disease, is found; thus, doubtless, amaurosis has resulted from mere *congestion* of the vessels of the retina. Moreover, there is a little motion in the iris, which is not usually the case in confirmed amaurosis.

Venesection was ordered, the flow of blood to be continued almost to fainting. Then

℞. Hydrarg. chlo. mit. gr. x.,

to be followed in two hours with

Magnesiæ sulphat. ℥ss.
Sennæ ʒj.
Aq. bullient. f. ℥iv.

S. To be taken at one dose.

After the operation of the cathartic, to take the following:

℞. Hydr. chlo. mit. gr. xvi.
Potass. nitrat. ʒij.
Ant. et Potass. Tart. gr. ij.

M. ft. in chart No. xvi.

S. one thrice daily.

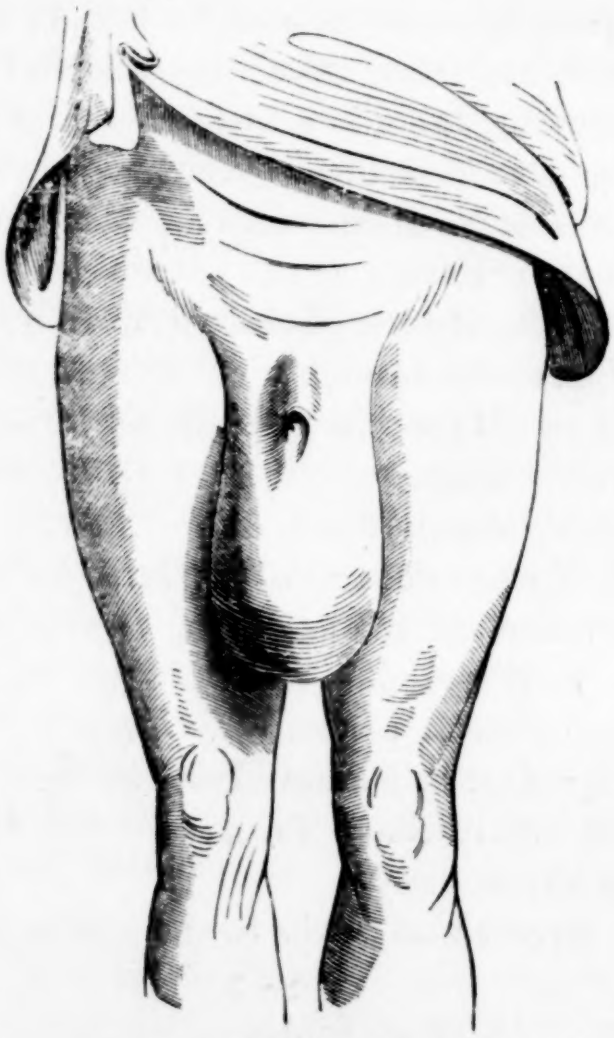
He was also directed to apply to the eye externally by saturated cloths:

℞. Plumbi Acetat. ʒj.
Aquæ fontis ℥viij.

M. ft. in lot.

Feb. 5th. As we see him to-day, vision has greatly improved in the left eye, but some iritis exists in the right, for which he is directed to renew the calomel, nitre and antimony, and take as before directed; besides which a seton is passed in the back of his neck as a powerful counter-irritant. Diet moderate, and occasional purging.

Case LXXVI.—*Cystic-sarcoma of the left testicle, congenital,* in Wm. Henry B——, aged 3 years. This tumor which existed at the birth of the child as above stated, has grown with his growth, but has not increased in size, relatively to the body. Its external appearance is well represented in the cut, (by Gihon, from a drawing by Mr. J. Wilson,) as extending from near the abdominal ring of the left side, very nearly to the knee, filling up the entire scrotum and drawing down the integument of the abdomen to such an extent as to obliterate any appearance of a penis, the extremity of the prepuce only being visible.



It corresponds very well to the description of tumors in this situation which occur in warm climates.

It is not hydrocele, since there is neither translucency nor fluctuation. It is not enterocele, since there is no well marked connexion with the abdominal ring, and it is too firm for such a tumor. It is not epiplocele, since it is not doughy and very unequal, but is quite elastic and hard.

The operation is entered into with the expectation of finding, either a fibrous tumor of the scrotum, or the testicle itself.

The removal was effected by the Surgeon, standing on the right, as follows: A single incision was made, commencing below the external abdominal ring of the left side, and carried along the side of the body and around the fundus of the mass to a corresponding point on the right side. A strong tenaculum was now placed in the tumor at its fundus in the line of the incision, and sufficient traction exerted by an assistant to ensure an easy dissection of the integument and fascia from its surface. This was readily accomplished, but upon arriving at its upper and posterior aspect, a distinct but delicate funicular connection with the external ring was noticed; about this cord, high up, a ligature was thrown, below which its vessels were cut at about an inch from the tumor, which was doubtless the left testicle.

The amount of hæmorrhage was unimportant. The abdominal integument retracted at once, and the form of the penis was re-developed; the scrotum became corrugated, and the cremaster muscle of the right testis was alternately retracted and relaxed, no such movements occurring upon the left side. The edges of the incision, (now very much diminished in length,) were brought together by four twisted sutures, and the scrotum supported by strips of adhesive plaster.

The case was taken charge of by Dr. Fussell of this city, who also assisted in the operation.

Feb. 2d. Symptoms of local inflammation, with symptomatic fever, were fully developed on the second day after the operation, requiring the application of ten leeches, and the internal exhibition of Hyd. Chlor. Mit., followed by Magnes. Sulph. Subsequently,

℞. Potass. Nitrat., ℥ss.
Ant. et Potass. Tart. gr. i.
Aquæ font. f℥iv.
S. A tea spoonful every two hours.

This treatment reduced the local and general symptoms in a few days; since which they have entirely subsided.

The tumor, as here shown (in a cut by Gihon, from a drawing by Mr. J. Wilson,)

is $5\frac{3}{8}$ inches in length. It is enclosed in a firm fibrous structure, which has a serous covering. Several vessels enter its upper and posterior aspect.

On dividing the mass longitudinally, it is found composed of tortuous crypts of variable size filled with a transparent glutinous fluid, separated by fibrous bands, dotted here and there with black; from one cyst larger than the rest at the lower angle, some apparently strumous flocculi were discharged. The tumor is, in all probability, a *cystic sarcoma* of the testis, which is rare, a very few such cases being reported. The cysts are enlargements of the tubuli semeniferi, quite analogous to the condition which exists in cystic sarcomata of the breast. The following is a microscopic analysis of its contents, by Prof. F. G. Smith, of this Institution:

Calcareous deposits in the tunica vaginalis testis.

Cholesterine and fat cells.

Pus globules and glandular tissue.

Melanotic cells.

Colloid matter, no cancer cells, but large inorganic globules, granulous matter.

We must conclude, therefore, that whilst there is no *positive* malignancy in this tumor, that it is proper to follow the case closely, and observe if there be any further developements.

Case LXXVII. *Porrigo favosa.*—Christiana S——, aged 19 months. This is the most common form of scald head. It consists of favous pustules, resulting in scabs, and is contagious.

The scabs are circular and cup-shaped; they enlarge gradually, and multiply until a great part of, or the whole scalp, may become involved; the contiguous cup-shaped depressions presenting the appearance of a honey-comb, from which resemblance the affection has received a part of its name, *favosa.*

This case is one of moderate severity.

It was directed that the scalp should be well cleansed with soap and water, by means of a fine sponge, and that Tar ointment should be applied morning and evening.

The following was prescribed for internal use:

℞. Potassii Iodidi, gr. vi.
Iodinii, gr. iii.
Aquæ fontis, f℥i.
S. 15 drops thrice daily.

Feb. 2d. Sinus in Left Cheek.—Delia M——, (Case LXVI.) The inflammation and swelling seem here to continue unusually long, so that, in all probability, some portion of a decayed fang still remains. On examination of the jaw, such a fang was found, and removed.

Case LXXVIII. *Contusion resulting in Abscess.*—Thomas C——, aged 40. This patient, whilst running, about two weeks since, fell upon a curb stone, severely bruising his right elbow and arm. This injury has resulted in an abscess on the outside

and back of the forearm, just below the elbow. Upon opening this abscess by a straight bistoury, in its most prominent part, as far from the joint as possible, pus of a strumous character was evacuated. Poultice ordered.

Case LXXIX. *Cataract, left eye, formative stage.*—Mr. W——, aged 55. The sight of the left eye in this person began to fail some eight months back, since which time the obstruction to vision has gradually increased. At present he can see that persons are before him, although he cannot distinguish them. In cloudy weather his vision is by far the best, (this is one of the surest diagnostic marks of cataract.) The pupil is of normal size, and presents a nebulous appearance. No operation would be justifiable at present.

Ordered purgatives and moderate diet, with protection of the part from cold.

Case LXXX. *Fracture of left clavicle.*—George McC——, aged 20. The fracture occurred seven weeks ago, just above the coracoid process of the scapula, and as no very great displacement results from such an injury at this point, the patient, unalarmed, did not apply for surgical aid until three weeks after the accident, when it seems that the ordinary treatment was pursued. The case is presented for the observation of the symptoms and results of this peculiar fracture. From the manner in which the clavicle is bound to the coracoid process, the fragments were but slightly displaced, and the patient, supposing a contusion only, was not startled until subsequent swelling came on from formation of callus. The injured clavicle is found, on measuring from the centre of the sternum to its acromial extremity, to be a half inch shorter than its fellow; the fractured ends do not perceptibly project upward, a mass of callus being found surrounding them.

Double Cataract. Margaret G——, (Case LXXII.)—In this case inflammation set in about 36 hours after the operation, for which she was bled from the arm to approaching syncope, after which a brisk purge was given, which operated well. The inflammation not yielding entirely, and becoming aggravated, on

the ensuing day twenty leeches were applied to the temporal region of the same side, and the following powders ordered:

℞. Hyd. chlor. Mit. gr. xvj.
Potass. Nitrat. ʒij.
Ant. et Potass. Tart. gr. ij.

M. ft. in chart. No. xvj. S. One every four hours. These were continued until slight constitutional effects were had. The case resulted in a perfect cure.

Case LXXXI. *Chronic Erythema.*—Charles M——, aged 65, a turner, always had good health, has chronic erythema of the dorsum of left foot and anterior part of leg, extending from the toes to just below the knee, with subcutaneous effusion.

The following ointment was ordered:

℞. Plumbi. Acetat. ʒij.
Cerat. Simp. ℥ij.

M. ft. ungt. S. To be applied on a cloth, evenly spread, and retained by a bandage from the toes up.

Case LXXXII. *Orchitis.*—Charles H——, aged 27. Has subacute inflammation of the right testis, arising from cold, he was ordered:

℞. Hydrarg. Chlo. Mit. gr. v.

To be followed in two hours by:

℞. Magnesiæ Sulphat. ℥j.

And adhesive strips were rather firmly applied to the affected testicle in the presence of the class, in the manner ordinarily directed.

BIBLIOGRAPHICAL NOTICES.

Report of the Pennsylvania Hospital for the Insane, for the year 1852. By Thomas S. Kirkbride, M. D., Physician to the Hospital.

Dr. Kirkbride's Twelfth Annual Report presents a most gratifying account of the noble Institution under his charge. "It closes its twelfth year," we learn, "in a state of high prosperity; its buildings about as extensive as are desirable, nearly every

room in all its wards constantly required to accommodate those who resort to it for relief, and its means of adding to the comfort and happiness of its patients, and carrying out a liberal course of treatment, steadily rising in character, and increasing in number and efficiency."

The most important improvement made in the Hospital, during the past year, is the introduction of *gas* for lighting the Hospital buildings. It is brought a distance of nearly two miles from the Philadelphia Gas Works ; and its " convenience, cleanliness, safety, and economy" have been made so apparent, that Dr. Kirkbride views it as really indispensable in an Institution of the kind. And he considers it, besides, an important remedy :—

" The effect of cheerful, well-lighted halls and parlors is most striking upon every class of patients, as will readily be acknowledged by all who have watched their appearance or heard their remarks, where an improved mode of lighting has been introduced. There can be scarce anything more dreary about such establishments at night, than the appearance of their long halls so dimly lighted as barely to prevent persons running against each other, or parlors in which no one can read but in immediate proximity to the feeble lamp. When it is remembered, too, that the period during which this state of things exists, is often for at least six hours out of the sixteen that patients are out of bed, it may readily be understood how important it is to change all this gloom into cheerfulness, and to substitute a bountiful supply of gas-light for the obscurity commonly connected with ordinary lamps."

Institutions, distant from large cities, " can have the gas made on the premises, about as cheap as it can be ordinarily bought, and without difficulty, risk, or trouble of any kind."

Among the points to which Dr. Kirkbride particularly adverts in the Report before us, is the importance of a farm and garden as an appendage to an Hospital for the Insane.

" No new Institution, I feel quite confident," he says, " will hereafter be put up on less than one hundred acres, which amount seems to be indispensable to give the proper degree of privacy, to provide sufficient means of labor and of exercise, and to furnish the supplies that are required. It also seems well established that a wise foresight, sound views of the objects and real capabilities of Hospitals for the Insane, and true economy, should lead the older Institutions, less fortunately situated, at the earliest possible day, to dispose of their present establishments, and to provide new ones in more favorable locations. The experiment

of transferring a Hospital for the Insane from a city to the country, of substituting new for old buildings, and having more than a hundred instead of a few acres of land, was made by the Pennsylvania Hospital in 1841, and I presume no one will now be found to doubt the propriety of the course adopted, nor to raise the question, whether the results of that change, costly as it was, have not been such as to justify all the expense that was incurred."

Among the desirable improvements that have been lately added to the Institution, we notice with pleasure a *calisthenium*, intended to give the female patients the free use of calisthenic exercises. To free muscular exercise in the open air, Dr. Kirkbride attaches prominent importance as a therapeutic resource in the treatment of nervous disorders—quite as essential for the female as the male sex. "Muscles versus Nerves" is the motto which has been pleasantly adopted for the new calisthenium; and Dr. Kirkbride very aptly introduces the following strain of remarks "from an intelligent patient, in noticing this motto:"

"She very naturally inquired whether, if it was true that the use and development of the muscles kept down nervous irritability and removed nervous diseases, some very marked change had not come over the views of professional men and hospital practice, for that, in her early experience among the excited class, the grand object seemed to be to keep down and weaken the muscles, and let the nerves take care of themselves. Or else what could mean the varied and systematic modes of direct depletion, with the low diet, and, above all, the studied efforts to keep quiet these same muscles, either in a forced recumbent position, or worse, if upright, in that machine, whose title seems to have been framed in bitter irony of its real effects, the tranquillizing chair.' It seemed as though some grave surgical disease might be supposed to exist in every part of the body, which the slightest movements of the muscles would aggravate. The muscles of the tongue, however, were left at liberty, and full advantage was generally taken of this partial freedom, to give them, at least, abundant exercise, to the great annoyance of all in the vicinity. This criticism on that mode of treatment could hardly have been more pointed or more just. Much as it might reduce the muscular system, the experience of this, and of most other patients, would certainly be, that the reduction brought with it neither tranquillity to the house, comfort to the afflicted, nor composure to the disturbed mind."

We close this acceptable report, with the warmest feelings of gratification at the renewed evidence which it offers, of unceasing devotion to the physical comfort and therapeutic management of the insane.

On the Employment of Iodide of Potassium as a Remedy for the Affections caused by Lead and Mercury. By M. MELSENS. Translated by WILLIAM BUDD, M. D. [Published in the British and Foreign Medico-Chirurgical Review, for January, 1853.]

Dr. Budd, in his preface to M. Melsens' Memoir, very justly observes, that, "if as M. Melsens alleges, and as his numerous experiments seem conclusively to show, iodide of potassium is not only a safe, certain and radical cure for the common forms of saturnine and mercurial poisoning, but an equally sure preventive of the injurious effects so frequently produced by emanations from lead and mercury, the fact is one that cannot be made too widely known." And M. Melsens has attempted further to establish a relation between the iodide of potassium and mercury, as therapeutic agents, which is no less deserving of attention.

His starting point in reference to mercurial and saturnine poisoning is, that the metallic substance is in actual union with the affected part or parts, and is retained there in the form of some *insoluble* compound. "The iodide of potassium, after its absorption into the blood, combines with the metallic poison, and forms with it a new and *soluble* salt—liberates the poison from its union with the injured part—dissolves it out, so to speak, from the damaged fibre, and sets it once more afloat in the circulation." And the double iodide of mercury (or lead) and potassium is assumed to be eliminated through the kidneys almost as soon as formed, with any excess of iodide of potassium present.

The modus operandi of the antidote proposed here is apparently in antagonism with established views of antidotical action. In attacking a poison in the stomach, our purpose is to convert it from a soluble to an insoluble compound, with the aim of preventing its absorption into the circulation. But the object here is the reverse, to restore the poison to the current of the circulation, and cause its final elimination by uniting it with a substance readily cast out of the system.

It appears, from the experiments of M. Melsens, that the *kidneys* are the principal outlet for the iodide of potassium from the system; that, under ordinary circumstances, it is seldom or never traced in the fecal evacuations; and that even when associated with active purgatives, it is with extreme difficulty made to pass

through the bowels into the stools. So much for the channel of elimination. The essential chemical point in the eliminative process is the fact that all the mercurial and saturnine compounds which can possibly occur in the economy, are soluble in the iodide of potassium; the presence of the organic substances of the body not hindering these reactions. We quote at length M. Melsens' views and statements on these questions; and first as to mercury:

"It is well known that persons who have undergone mercurial treatment have observed, even after an interval of many years, that gold placed in contact with their perspiration has become coated with mercury, especially when excessive perspirations have been caused by the use of the vapor bath. If this fact be true, it proves that the system may absorb and retain mercury for a long time under forms which I will not try to define, but which very probably result from the insoluble compounds which the salts of mercury form, either with the organic or inorganic materials of the body, or with both conjoined. Perhaps the mercury may even occur in the metallic state, as some have admitted; at any rate, it is present in the body in such form as to be retained there. The principal combinations which might thus occur may be reduced to the following:

1. Combinations of corrosive sublimate, whether in its simple state, or as modified by the animal substances of the economy—namely,
   - *a.* With albumen.
   - *b.* Albumen, and the materials of the brain.
   - *c.* Gelatine.
   - *d.* The nitrogenous extractive matters of the blood, of muscle, of the urine, &c.
   - *e.* Albumen, fibrin, muscular fibre, pelatine, whether in the natural state or modified by digestion.
   - *f.* Matters of the bile.
2. Mercurial soaps.
3. Phosphates of mercury.
4. Mercury in the metallic state. (?)

All these compounds are soluble in alkaline or neutral pure iodide of potassium dissolved in one of the liquids of the body. I have made experiments with each of the compounds here enumerated, and have always succeeded in dissolving them under whatever circumstances. If the iodide of potassium be associated with a dilute acid which has no energetic action either on the solution of the salt or on the principles which occur in the body, the solution of the fixed mercurial compounds is still effected perfectly. In obtaining this last result I operated with lactic acid. After fixing corrosive sublimate on nervous filaments, muscular fibre, or on tendons, it is only necessary to wash them for a short time in a solution of iodide of potassium, whether acid, alkaline,

or neutral, in order to remove entirely the mercurial salt. It is especially with a solution of albumen and sublimate that these properties admit of being perfectly demonstrated; indeed, the experiment has been for many years a class experiment in M. Dumas' course at the School of Medicine. It is only necessary to pour a solution of iodide of potassium on the precipitate formed by albumen and sublimate, in order to see the liquid become instantly limpid. The iodide of mercury possesses a property which I must not omit to point out. This compound, as is well known, is soluble in caustic potash. Now, although caustic potash is not found in the living body, the alkalinity of the greater number of the greater of the fluids which are found there is worthy of being borne in mind, and acquires a certain degree of interest when viewed in relation to the following experiment. Mercury coarsely divided was placed under a layer of water holding in solution caustic potash and iodide of potassium. After some weeks' contact a considerable quantity of mercury was found dissolved in the liquid.

It is well known that metallic mercury in contact with alkaline chlorides in solution, itself passes in part to the state of chloride. It remained for me to prove that this reaction might occur in perfectly neutral or even in alkaline fluids. It was necessary in this experiment to guard against the intervention of the carbonic acid of the air, or of the acids sometimes diffused in the air of chemical laboratories. It appeared to me quite necessary to make this experiment, especially as it was possible that mercury might exist in the body in the metallic state, and yet act as a poison; in which case, the experiment I have just cited would still permit the hope that the poison might become dissolved by the action of the iodide of potassium, rendered alkaline by the fluids of the living body.

When metallic mercury is shaken in a solution of iodide of potassium, whether neutral or slightly acidulated with hydrochloric acid, the solution soon acquires an alkaline reaction—an incontestable proof that the oxygen of the air has laid hold of the potassium of the iodide, which, in its turn, has yielded its iodine to the mercury, the iodide of mercury thus formed having entered into combination with the iodide of potassium remaining in excess. It suffices to shake vigorously a neutral or slightly acidulated solution of iodide of potassium with an excess of mercury, for the space of a minute, in order to see the reaction occur. This might be easily done as a class-experiment, to show the tendency of the alkaline haloid salts to form double salts with the corresponding haloid salts of the metals properly so called. An analogous phenomenon may be observed, although less readily, with common salt, and, indeed, simple potash excites the oxidation of mercury, and dissolves small quantities of the oxide. When these experiments are made in closed vessels, it is easy to demonstrate the disappearance of oxygen, by analysing the air which has been operated on."

The solubility of the compounds of lead in iodide of potassium, is, it is admitted, of more difficult proof. On this point he says:

"I shall content myself with observing, therefore, that the iodide of lead is soluble in alkaline liquids, and that it has a marked tendency to combine with alkaline iodides. These facts have appeared to me to constitute adequate motives to induce medical men to employ the treatment by iodide of potassium for complaints which, however much they may be relieved, are, according to our best physicians, rarely, if ever, radically cured.

"I have proved that metallic lead becomes dissolved in a solution of iodide of potassium, rendered alkaline by potash. It is well known how rapidly certain metals become oxidized when exposed to moist air, in the presence of even feeble acids, like the carbonic acid of the atmosphere. This is the case with iron, and indeed with lead. The intervention of an alkali sometimes suffices to prevent oxidation. Such is the case with iron. Lead, copper, and zinc become oxidized, on the contrary, more rapidly in contact with an alkaline liquor. I have proved that granules of perfectly metallic lead, bathed by a solution of iodide of potassium, rendered alkaline by potash, become, after a time, partly dissolved in this mixture."

The legitimate sequitur of these chemical reactions is obviously increased activity of certain salts of mercury in the stomach, when followed by the administration of iodide of potassium. And this point seems to be made out both by reference to the statements and experiments of other chemists, and to M. Melsens' own researches with particular reference to the subject. And as a confirmatory fact, it is asserted that, in the treatment of secondary syphilis, "the administration of iodide of potassium often causes intense suffering in patients who have been treated by mercurials."

Analogous results are shown to have occurred after the administration of iodide of potassium to animals who have taken lead compounds—that is, aggravation of the poisonous phenomena. And, hence, it is urged that "great caution is necessary in the employment of this remedy in man, for the first few days." For, "at the moment when the metallic compounds fixed in the body become dissolved or transformed, phenomena of acute poisoning may occur, caused by their liberation."

Numerous cases are adduced of the successful application of this treatment to the relief of lead poisoning and mercurial poisoning. In fact, it is impossible to disbelieve in the remedial value of the agent, after perusing the mass of testimony by which it is attested. We confess, however, that plausible as is the theory of its action, we do not clearly understand the rapidly

succeeding activity and disappearance from the system which we are asked to admit in the combination of the poison and antidote.

A Discourse on the Times, Character and Writings of Hippocrates, read before the Trustees, Faculty, and Medical Class of the College of Physicians and Surgeons, at the opening of the term, 1852–53. By ELISHA BARTLETT, M. D., Professor of Materia Medica, &c. New York, 1852.

This elegant and instructive picture of the life and times of the Father of Medicine, will be read with general interest, and must take a place in our permanent medical literature.

The Physician's Pocket Dose and Symptom Book; containing the Doses and Uses of all the principal Articles of the Materia Medica and Chief Officinal Preparations, &c. &c. By JOSEPH H. WYTHES, M. D. Philadelphia, Lindsay & Blakiston: 1853. pp. 246.

This will be found an exceedingly convenient little pocket manual, especially useful to the young practitioner, in the emergencies which he so often encounters in the commencement of practice.

What to observe at the Bed-Side and after Death in Medical Cases. Published under the authority of the London Medical Society of Observation. Philadelphia: Blanchard and Lea. 1853.

This little book strikes us as meeting a want that has long been felt—in offering suggestions for uniformity and precision in the observation of disease. The form of arrangement of symptoms and after-death appearances, appears to have been originally framed by Dr. Walshe, and thrown into its present shape by a Committee of the London Medical Society of Observation, under the supervision of Dr. Ballard. These names are a guarantee for the thorough execution of the plan; and a rapid glance at the work has impressed us most favorably of the completeness with which it has been accomplished.

Introductory Lecture to the Course of Chemistry at the Jefferson Medical College. By FRANKLIN BACHE, M. D.

Introductory Lecture to the Course of Chemistry at the Pennsylvania Medical College. By JOHN J. REESE, M. D.

We have to acknowledge with pleasure the receipt of these very able and instructive introductories to the branch of Chemistry, in the institutions designated. Dr. Bache's eloquent discourse cannot fail to sustain his high reputation as a Chemist and Teacher: and Dr. Reese's maiden effort is an appropriate introduction to the successful course which, we learn, he has delivered.

THE MEDICAL EXAMINER.

PHILADELPHIA, MARCH, 1853.

THE SOUTHERN JOURNAL OF THE MEDICAL AND PHYSICAL SCIENCES.

This is the title of a new bi-monthly, published at Nashville, Tennessee, under the editorial charge of "Drs. Jno. W. King and Wm. P. Jones, in the department of Practical Medicine and Surgery; Dr. R. O. Currey, Chemistry and Pharmacy; and Dr. B. Wood. Dental Surgery." It promises to be a spirited and able addition to the rapidly growing ranks of the American Medical Press.

THE ESCULAPIAN: A MONTHLY MEDICAL PAPER FOR THE PEOPLE.

We very cordially commend this publication to general favor. Its objects are implied in the title, which we quote above; and they have been carried out, in the two numbers which have come under our notice, with marked discretion and ability. It is edited by D. C. Griswold, M. D., and published for the low subscription of one dollar a year.

LECTURES ON EXPERIMENTAL PHYSIOLOGY.

Dr. E. Brown-Séquard proposes to give a course of lectures on Experimental Physiology in this city, early in March. It will embrace

the Physiology of the Nervous System, with applications to Pathology. He will also give a course to students at the same time.

Both courses will be illustrated by vivisections.

Dr. Brown-Séquard's thorough acquaintance with this department of science, will ensure ample repayment to all who may attend upon his instructions and demonstrations.

MEDICAL NEWS.

THE NEW YORK MEDICAL GAZETTE appears in a new and improved dress, and is henceforward to be published monthly. It has taken a firm hold of the Profession.

THE BRITISH AND FOREIGN MEDICO-CHIRURGICAL REVIEW has adopted the plan of affixing the *names of reviewers* to many of the reviews which appear in that Journal. The Journal, it should, however, be borne in mind, is published without the usual responsibility of editorial names, and it is not intended "to lay aside altogether the incognito" in reviews.

At a meeting of the College of Physicians of Philadelphia, held February 2d, 1853, the following gentlemen were elected Delegates to the American Medical Association: Isaac Hays, George Fox, Henry Bond, W. S. W. Ruschenberger, G. Emerson, J. Rodman Paul, Chas. Evans, William Ashmead, John Bell, Ed. Hallowell, Alfred Stillé, Joseph Carson, R. La Roche, Ed. Hartshorne, Robert Bridges.

NORTHERN MEDICAL ASSOCIATION.—At a meeting of the Northern Medical Association, held January 6, 1853, the following members were elected officers for the present year:

President.—Dr. Benjamin S. Janney.

Vice-President.—Dr. N. L. Hatfield.

Counsellors.—Dr. Joseph R. Bryan, John F. Lamb, Isaac Remington, Wm. Mayburry, and John Uhler, Jr.

Secretary.—Dr. J. Henry Smaltz.

Corresponding Secretary.—Dr. Isaac Remington.

Reporting Secretaries.—Drs. John Rhein and C. P. Turner.

Delegates to the American Medical Association.—Drs. L. Curtis, B. S. Janney, N. L. Hatfield, J. F. Lamb, R. J. Levis, and Isaac Remington.

The Naval Medical Examination Board met at Philadelphia on the 15th of December, and has reported the following Assistant Surgeons as qualified for promotion: 1, Wm. Lowber; 2, P. J. Horwitz; 3, B. Rush Mitchell; 4, D. E. Phillips; 5, Jas. Hamilton; 6, J. L. Burtt. Thirty-four candidates for admission into the Navy as Assistant Surgeons, were examined, and the following nine were selected as the best qualified: 1, James H. Stuart, of Pennsylvania; 2, J. Pembroke Thorn, of Virginia; 3, John M. Browne, of New Hampshire; 4, John T. Taylor, of Delaware; 5, Henry Clay Caldwell, of Virginia; 6, Thomas J. Turner, of Pennsylvania; 7, William T. Hord, of Kentucky; 8, Wentworth R. Richardson, of Massachusetts; 9, A. Clarkson Smith, of Pennsylvania.

The Medical Profession in Paris.—The Medical Directory of Paris, published by *L'Union Médicale*, gives the following numbers as to our Parisian brethren. Doctors of Medicine and of Surgery, 1337: officiers de santé (an inferior grade,) 179; pharmaciens, 423; midwives, 277. From the 1st of January, 1851, to 31st of December, 1852, there died in Paris 39 doctors of medicine; in the two previous years 64 had died. In the year just elapsed, 88 new practitioners set up in the capital. This year's list contains 15 medical men less than the last. The Directory also gives the numbers in the districts surrounding Paris, and from these statements it would appear that there is a great disproportion between doctors and patients. There are in fact less than 500 inhabitants for one medical man; and when it is considered how many of these apply to public institutions, very little is left for individual practitioners. *L'Union Médicale* warns young men from settling in Paris, as the exuberance of professional men is enormous.—*London Lancet.*

Death of Dr. George Gregory.—This distinguished author and physician died after a severe illness, on Wednesday, the 25th of January last, in London. He was well known to the Profession and to the public as the Physician to the Small-pox and Vaccination Hospital, as a Lecturer on the Practice of Medicine at St. Thomas's Hospital, and as the author of treatises on the theory and practice of medicine, and on eruptive fevers, as well as of several papers which have from time to time appeared in the "Transactions" of the Royal Medical and Chirurgical Society, and in other journals. His first work has been so highly appreciated, that it has not only gone through six editions in this country, but has been most favorably received in the United States of

America, and in our East Indian territories, and is still used as the text-book of most of the Army medical officers.—*London Med. Times and Gaz.*, Jan. 29, 1853.

Death of Sir William Newbigging.—We have to record the death of this highly respected surgeon, which took place at his residence in Edinburgh, on the 23d of October last. Mr. Newbigging was born at Lanark in 1772; and, after pursuing his studies at Edinburgh, became a Fellow of the Royal College of Surgeons of Edinburgh in 1799.

Sir William was a Fellow of the Royal Society of Edinburgh, was formerly President of the College of Surgeons, and Vice-President of the Wernerian Society. The interest which he took in the cultivation and advancement of useful knowledge led him, when his retirement from practice left him more at leisure, to become a fellow of the Scottish Society of Arts when he was in his 77th year.—*London Journ. Med. Science.*

Obituary—Mr. Alexander Walker, the ingenious author of a work on the "Nervous System," and others on "Beauty," "Woman," "Intermarriage," &c., which displayed much original research, died at an advanced age at Leith, on Tuesday, December 7th.—*London Lancet.*

Death of Jonathan Pereira, M. D, F. R. S., &c. In all ages and in all conditions of society it has been customary, on the death of any distinguished individual, to commemorate the name of the deceased by recording the good deeds which in life rendered him illustrious. This has been done, not so much, perhaps, as a tribute of respect to the dead, as an incentive to the practice of virtue by the living; and surely there is no character which presents so many opportunities for useful comment and example as that which, amidst the difficulties of circumstances, has triumphed over obscurity, and risen into honorable fame. This was the case with the late Dr. Pereira, whose determination of purpose and untiring industry enabled him to accomplish more in the the space of one short life than is usually effected in that of many longer ones.

The subject of our present memoir was born in the parish of Shoreditch, in London, on the 22d of May, 1804. He received the rudiments of his education at some of the small schools in the neighborhood; and when he was about ten years of age he was placed under the tuition of a classical master of no ordinary attainments. This gentleman kept an academy at No. 10 Queen street, Finsbury, and Pereira remained with him for a period of four years, during which time he obtained the

friendship of his preceptor, who was accustomed to speak of him as a boy of considerable merit. When he left school he manifested a strong desire to enter the medical profession; and accordingly at the age of fifteen, or a little earlier, he was articled as an apprentice to Mr. Latham, an apothecary of the City-road. There he remained between two and three years, when his master became the subject of mental disease. This led to the breaking up of the practice and to the cancelling of Pereira's indentures. While he was with Mr. Latham he studied hard at his classics, and he drew a vocabulary of Latin terms for his guidance in dispensing.

At the close of the year 1821 he became a pupil at the General Dispensary in Aldersgate street, and he there attended the prelections of Dr. Clutterbuck on chemistry, materia medica, and practice of physic. He also availed himself of the lectures which were occasionally given by Dr. Birkbeck, on natural philosophy, and by Dr. Lambe, on botany. In the year following he entered to the surgical practice of Saint Bartholomew's Hospital. While thus engaged in the prosecution of his studies, a vacancy occurred in the office of apothecary at the Dispensary. This appointment he was anxious to secure for himself, but as he was not yet qualified for it, it was necessary that he should proceed at once to the hall, and obtain its license: this he did on the 6th of March, 1823, when he was only eighteen years of age. In the same month, he was appointed to the Dispensary, and we may date his illustrious career from that time. The salary at the Dispensary was not large—it was, in fact, only £120 per annum; and, with the view of increasing his income, he formed a class for private medical instruction. This he had but little difficulty in doing, as the lectures at the Dispensary were largely attended. His success in that undertaking was very great, and he thought it desirable to publish a few small books on the subjects in which he found his pupils most deficient. These were a translation of the "Pharmacopœia" for 1824, with the chemical decompositions; the "*Selecta è Prescriptis*;" a manual for the use of students; and a "General Table of Atomic Numbers, with an Introduction to the Atomic Theory." These works were published in the course of the years 1824–5, 6 and 7; they had a very extensive sale, and two of them are in existence at the present time.

In the year 1825 he passed the College of Surgeons, and in the year following he succeded Dr. Clutterbuck as a lecturer on chemistry. At that time he was only twenty-two years of age, but his appearance was commanding, and he therefore looked much older. His first lecture was given to a large class of pupils and friends. It was eminently successful, and he received the warm congratulations of his numerous admirers. Then, as ever afterwards, he sought to dazzle by the novelty of his facts and the profusion of his illustrations. His lecture-table was covered with specimens, and, among other things, he exhibited the new element, bromine, which Bolard, of Montpelier, had just then discovered.

In the course of a year or two after that time, he began to collect the

facts for his "Materia Medica." He saw that the whole subject of pharmacology was involved in the greatest confusion, that its principles were misapprehended, and that its doctrines were founded in absurdity and conjecture. From this chaos and darkness he determined to relieve it. Accordingly, he commenced a diligent search for all the facts of the science; he studied the ancient fathers of physic, and made himself master of the literature of the subject, from the earliest period of history; he collected the works of English writers, and he undertook the study of French and German, in order that he might read those of the Continent. At that time he devoted his whole energies to the subject, and worked for about sixteen hours a-day. He was accustomed to rise at six in the morning, and to read, with but little interruption, until twelve at night. This he continued to do for several years; and had he not been possessed of an iron constitution, of great physical endurance, and of a most determined purpose, he would unquestionably have sunk under it. As it was, the closeness of his application occasioned several slight attacks of epilepsy, and a frequent determination of blood to the head. After a short time he began to give lectures on materia medica, as well as on chemistry, at the Dispensary; and he must have been so completely engaged that he could not find leisure for original investigation. In fact, from the year 1827 until that of 1835, his name appears but once in the journals of the time. This occurred in 1829, when he published a short paper in the *London Medical and Physical Journal*, on the adulteration of hydriodate of potash.

In the year 1832 his affairs were in so prosperous a state that he ventured to leave the Dispensary, and to get married. He resigned his appointment in favor of his brother, and he commenced practice as a surgeon in Aldersgate street. A reference to THE LANCET of the time will show that he left the Dispensary about twelve months before the notorious quarrel occurred at that Institution. It is probable that he foersaw the approaching storm, and retired from the falling house; but be that as it may, he had, in the year of his marriage, joined the new medical school in Aldersgate street; and in the year following he was elected to the Chair of Chemistry in the London Hospital. For a period of six years he lectured at both of these places on three subjects —namely, on Chemistry, Botany and Materia Medica; and during the whole of each winter session he was accustomed to give two lectures daily. While he was at the Aldersgate Medical School he became very intimate with Dr. Cummin, who was then the editor of the late *Medical Gazette*; and in consequence of this and also of his great popularity as a teacher, he was engaged to publish his lectures on Materia Medica in that journal. They extended over a period of two years, viz., from 1835 to 1837, and amounted to seventy-four in number. There can be no doubt that they greatly added to his reputation; for we find that they were translated into the German, and re-published in India. In 1839, he re-produced them in another form—viz., in his "Elements of Materia Medica," and this work was so much appreciated

that the whole of the first part was bought up long before the second was ready for delivery. A second edition was therefore immediately called for, and it appeared in the year 1842. Before this date, however, viz. in 1839, he had been chosen Examiner in Materia Medica in the University of London; and in 1841 he had been elected Assistant-Physician to the London Hospital He took his degree at Erlangen, in 1840, and he obtained his license at the College of Physicians directly afterwards. About the same time he was invited by some of the authorities of St. Bartholomew's Hospital to lecture at the medical school of that Institution, and the arrangements for his so doing had been almost completed, for a syllabus of the course was actually published; but when it was notified to him that he would be required to give up his other appointments, he refused to relinquish his position at the London Hospital, at which institution he had experienced great kindness. He immediately afterwards, however, gave up the Aldersgate School.

In 1842, he gave two short courses of lectures at the rooms of the Pharmaceutical Society, and, in the year following, he was appointed its first professor. During that year he published his work on Food and Diet, and he was elected on the Council of the Royal Society. By that time, his practice as a physician had become rather extensive, and as it was rapidly increasing, he determined to throw aside his more scientific pursuits. Accordingly, in 1844, he resigned a part of the course of chemistry at the London Hospital into the hands of Dr. Letheby; in 1845 he gave up a larger portion of it; and in 1846 he relinquished it altogether. He continued, however, to lecture on Materia Medica at both the hospital and the Pharmaceutical Society, and there is no reason for believing that he contemplated any change in this matter until the new regulations of the Apothecaries' Society transferred his course to the summer session. This arrangement interfered with his usual habits, and also with his ideas of the importance of the subject, and consequently, in 1850, he resigned his lectureship at the hospital, though he still continued to deliver a winter course at the Pharmaceutical Society. In 1845, he was elected a fellow of the College, and, in 1851, he became a full physician at the hospital. He had now reached the summit of his ambition: his reputation as an author was established, and the rewards of industry were falling thick about him. He was a fellow of many scientific societies, he was in constant communication with the learned of all countries, he was intimately connected with many of the greatest institutions of the metropolis, and was, in fact, their brightest ornament; he had collected around him a large circle of friends and admirers, and he saw before him the prospect of wealth and happiness. In the midst of all this, however, he was stricken down, and that so suddenly, that he had hardly time to take leave of those who were about him. He died on the 20th of January last, and within one week of health and hope he was placed in his last resting place. His funeral took place at Kensal-green on the Thursday following, in the presence of a large number of friends and pupils, who mourned in silent grief.

A retrospect of the labors of this distinguished physician will show that he was a man of no ordinary capacity, that he was characterized by qualities which always ensure success. He had an unquenchable thirst for knowledge, an indefatigable spirit, unbounded industry, and a determination of purpose that was irresistible. Whatsoever he did he did well, and he therefore made his performances as valuable to others as they were creditable to himself. This is evidenced by the works to which we have alluded, for they have made for him the reputation which he possessed, and have given to others the means of acquiring knowledge which is not to be found elsewhere. The great peculiarity of his efforts is, that he aimed more at bringing within our reach the treasures of other men's minds than of exposing those of his own. He has, indeed, been charged with a want of originality, and, most certainly, if we estimate him by the value of his own independent researches, he is open to such a charge; but it must also be admitted that it is an equally useful element of the human mind, that faculty which urges men to gather up the scattered facts of science, and to mould them into a shape that may be made available to all. This has our author accomplished, and the result of his labors will endure beyond the efforts of originality, for they will last through all time, as a monument of his industry.—*London Lancet*, Feb. 1853.

Death from the administration of chloroform.—A person named Henry Hollingworth, a factory operative from Newton-moor, near Hyde, has fallen a victim, at the Manchester Royal Infirmary, to the use of chloroform, administered to nullify the pain consequent upon a severe operation. An inquest was held on view of the body by Mr. Herford, coroner for the borough, when the following evidence was given:

Mr. John Wright Baker, house-surgeon at the Royal Infirmary, said the deceased was admitted on the 16th Dec., on account of a malignant tumor on the right thigh, to remove which an operation was performed, as it was looked upon as a cancerous tumor, though enveloped in much doubt, as those tumors often are. He was in a bad state of health when admitted, and everything was done to improve his health previous to the operation. A consultation, as I understood, had been held previous to his admission, and it had then been determined that the operation should be performed, of course with the consent of the patient. The consultation was of all the medical men of the infirmary. The deceased, the day before the operation, said he was ready for it, but wished to have chloroform. Almost every patient takes it. I said he should have it if he wished it, and that he would feel no pain, and that I would do all I could to support his strenth. I did not give him any caution. We have given chloroform frequently, and never had a fatal case before. At

eleven o'clock on Friday, the 24th Dec., the operation took place. There were present Mr. Jordan, as the operator, Mr. Beever, as his assistant in the operation, Mr. Wilson, Dr. Renaud, and Dr. Wilkinson (all members of the honorary medical staff of the infirmary,) and myself. Mr. Frederick Heath, a qualified surgeon, administered the chloroform. The man was very much excited, struggled, and talked fast. The chloroform was administered slowly, and every precaution was taken to prevent any danger; and the medical men remarked two or three times how very long it was in taking effect. He at last became insensible in about seven minutes at least. Mr. Jordan commenced the operation by an incision into the skin covering the tumor. I was assisting the surgeon when Mr. Heath directed my attention to the patient's face. This was about five minutes after the operation had commenced. I then observed congestion about the face, but there was no stertorous breathing. His pupils appeared almost to have ceased to act. His breathing was become exceedingly slow, and he seemed to be sinking fast. I directed the attention of the operator and other medical men to these symptoms. The operation was then suspended, and means resorted to for restoring animation, but the pupils had ceased to act, and had become fixed almost immediately. He gave one strong gasp, and then to all appearance was dead. In administering the chloroform, successive doses were given until it took effect. Every dose consisted of a drachm, taken at intervals in an inhaler. Constitutions differ with regard to the effect produced by chloroform, but we use every precaution to prevent injury; and I am satisfied that the surgeons did their duty in the administration of the chloroform and in the operation.

Mr. Jordan was examined, and stated, in corroboration of Mr. Baker's evidence, that more time elapsed than usual before insensibility was produced, and then it was not complete, for after the incision was made, the man, more than once, said a cat was scratching him. Chloroform was generally administered in cases of operation, unless there were circumstances which, in the opinion of the surgeons, rendered it undesirable. Mr. Heath was a competent person to administer chloroform. The post-mortem examination showed that asphyxia, caused by chloroform, produced the death. There was a congestion both of the brain and lungs.

Verdict—"Died from the effects of chloroform."

It is, we understand, the determination of the medical staff in all cases requiring the use of this deadly though valuable agent, to have one person to administer it, and another to scrutinize the effects upon the patients, in order to avoid a second fatality of the kind.—*London Lancet.*

THE FOUNDER OF THE BRITISH MUSEUM.—Sir Hans Sloane was born, according to some documents in the library of his splendid collection at the British Museum, in the County Down, Ireland, at a place called Killeagh, April 16, 1660. He stated in his will that the collection he was bequeathing the nation was richly worth £80,000. It contained 200 volumes of dried plants in the form of a *hortus siccus*, 30,000 mineral and other specimens of great interest in natural history, with a library of 50,000 volumes, and 3566 very rare manuscripts. There are two pictures of this great and talented Irishman in the Museum. One would like to see them more generally known. It appears, from the little written of Sir Hans Sloane, that it was in Ulster, in Ireland, he first imbibed that love of scientific pursuits that has since rendered his name, and we fear only his name, illustrious: in France and Ireland, in fact, was laid the foundation of his great museum. Like Hunter, Mozart, Goldsmith, Haydn, Johnson, and a legion of other great men, we find Sloane in early years struggling a good deal with adversity. Before he was of age he had several severe attacks of hæmoptysis, which threatened him with an early grave, like Laennec, Bichât and others; death, however, spared him till he had done his work. Stahl, Ray, and another great countryman, Robert Boyle, were then in the ascendant, all of whom were known to Sloane, and helped to form his mind. And yet who thinks, amid the winged bulls from Nineveh, and the magnificent collection crowded at present in the huge building of the British Museum, of Sir Hans Sloane or Boyle. We think of Watt whenever we see a steam engine, because with one happy thought he has made it the last wonder of the world in a utilitarian point of view; the great workers in the mine of abstract science and philosophy we disregard. In 1683, young Sloane set off for France, and there seems to have been delighted with the botanical collections and lectures of Tournefort, and spent a year collecting plants for the museum. We find him next going out to the West Indies, a young man, under 30, physician to the Duke of Albemarle, and in spite of many crosses and disappointments, still further adding to his specimens 800 species of rare and valuable tropical plants. These two collections form the first nucleus of the British Museum. It seems all this time he never forgot his native country, Ireland, and we should in all probability have those specimens now in Trinity College, Dublin, and the British Museum (which would be a great blessing) quite a different institution, but that Sloane got married to a very rich wife, and settled permanently in London. In 1693, he became Secretary of the Royal Society, and in 1727, was appointed physician to the king, and succeeded the great Newton as

president of the Royal Society. George I. made him a baronet, and he died, at the age of 93, in 1753.—*Dublin Medical Press.*

Five Cases of Persons struck by Lightning. —In five men who suffered from this accident, M. Minourid observed burns presenting black eschars, with destruction of the epidermis, rete mucosum, and of a part or the entire thickness of the dermis, covered with a dark-colored phlyctenæ, surrounded by an erythematous redness; the eschars were large, irregular, ill-circumscribed, oval, or round, separated from each other by spaces of inflamed skin; no part of the body escaped, but they were particularly well marked on the outside of the lower extremities. It is remarkable that nowhere did the burn extend deeper than the dermis (the burn of the fourth degree of Dupuytren.) Would it appear, then, that the subcutaneous cellular tissue is a non-conductor of electricity? Of ordinary burns, those which most resemble the effects of lightning are caused by gunpowder explosions; but the latter differ essentially, by bearing the marks of the grains of powder in the skin. In one of these men who died instantly, the writer observed that, though it was then the month of December, and the body had been left during the night merely covered with a cloth, and exposed to the air, yet after a period of thirteen hours, it was yet warm.—*Annali Universali di Medicina.*

RECORD OF MEDICAL SCIENCE.

CHEMISTRY.

On Some of the more Important Chemical Disinfectants. By George Wilson, M. D., F. R. S. E., Hon. Member of the Pharmaceutical Society of Great Britain.—I consider it an acknowledgment due from me to the Pharmaceutical Society of Great Britain, which has honored me with its diploma, that I should contribute a paper to the proceedings of its Edinburgh section, with which I stand more immediately connected. I have selected a subject, of special interest at the present moment, when we have reason to apprehend the appearance of cholera on our shores, but which is at all times a subject not less important than it is difficult. To discuss the entire question of disinfection would require many papers. I can only refer at present to some of its relations.

The term *disinfectant*, in strictness of language, can only be applied to those agents or substances which destroy or decompose infectious or contagious matter. But it is usually employed in a wider sense, so as to include, not only *disinfectants proper*, but likewise *antiseptics* and

deodorisers. Any attempt to draw a sharp line of demarcation between these three classes of agents, is rendered impossible by our almost total ignorance of the nature of contagious matter. Some substances, such as chlorine and sulphurous acid, possess at the same time, disinfectant, antiseptic, and deodorising powers. Some, like common salt, are probably simply antiseptic; of others, such as the salts of the heavy metals, which are in high repute as deodorisers, it may be questioned whether they are of any value as disinfectants, although with some persons they rank at the head of the list. Without insisting at present on this, it may suffice to define the bodies we are about to consider, thus: A disinfectant is an agent which effects the chemical decomposition of organic poisonous matter—the term poisonous being used in a wide sense to include all the known or supposed causes of the development of disease, which are referred to under the names of miasma, malaria, infectious virus, contagious matter, &c.

An antiseptic is an agent which prevents or arrests the development of organic poisonous (or non-poisonous matter) without effecting its chemical decomposition.

A deodoriser is a substance which destroys odor, by decomposing or combining with, or absorbing odorous matter. Chlorine, for example, decomposes sulphuretted hydrogen, whilst a salt of lead combines with it, and charcoal simply absorbs it.

Before considering the relative merits of particular substances belonging to these classes, it is necessary, however, briefly to discuss the important question—does the poisonous organic matter which occasions certain diseases, occur in the solid, liquid, or gaseous form? The certainty that prolonged exposure to a vitiated atmosphere, such, for example, as that of a fever ward, produces disease, has led to a conclusion in which probably all concur, that the air is one of the chief media through which disease is propagated, and this connexion has in turn led to the much more doubtful inference that infectious matter is truly gaseous or vaporous. This view has probably been strengthened by the recent extensive study of the properties of anæsthetics, and by the many observations which have been made on the rapid and powerful action on the body of substances which enter it through the lungs. It has certainly also been deepened by the opinion, widely prevalent, that the gases which are evolved from cesspools, sewers, and stagnant waters in general, particularly sulphuretted hydrogen, hydrosulphuret of ammonia, and marsh gas (light carburetted hydrogen) are the *direct* and *specific* causes of ague and fever.

If this opinion were well founded, the limits and best modes of applying disinfectants could be determined without much difficulty, and our control over infectious diseases would certainly be much greater than it is.

I think, however, that we may with confidence affirm that the great majority of diseases are not propagated by gaseous poisons. The recent tendency to advocate an opposite opinion, has been mainly occasioned, I believe, by an opinion expressed by the late Professor Daniell to the effect, that the fatal fever of the African coast is occasioned by sulphuret-

ted hydrogen. This view was founded on an analysis of water brought from that coast, and determined the ventilating arrangements fitted up in the vessels which formed the disastrous Niger Expedition. It appears to have been extensively adopted by medical men.

During the frequent prosecutions for nuisance, under the new police act, which took place in this city and elsewhere, during the last visitation of cholera, it occurred to me, and to other chemists, to be constantly met by endeavours on the part of the prosecutor to compel an acknowledgment that sulphuretted hydrogen, hydrosulphuret of ammonia, and marsh gas or light carburetted hydrogen, which are confessedly given off by sewage waters, are the *direct* causes of fevers and other diseases. So long as this idea prevails, and men rest satisfied with it, as the true explanation of the mode in which fevers and similar maladies originate and are disseminated, they will cease to prosecute inquiry into the matter. It is most important, therefore, to discountenance the notion that we are acquainted with the true *materies morbi*.

That neither sulphuretted hydrogen nor hydrosulphuret of ammonia produces any special disease, may be sufficiently demonstrated by the impunity with which persons are known to expose themselves to much larger quantities of these gases than can possibly act on those who suffer from exposure to marsh miasmata. In these, the nicest tests have failed to give the slightest indications of sulphuretted hydrogen, and yet a few hours exposure to such miasms has been enough to develop fever. On the other hand, in every analytical laboratory, sulphuretted hydrogen and hydrosulphuret of ammonia are daily respired for weeks or months together by those engaged in analysis, yet analytical chemists certainly are not specially subject to fevers. At the Bonnington Chemical Works, where the ammoniacal liquor from the Edinburgh Gas Works is largely converted into sulphate and muriate of ammonia, the workmen are exposed to the hydrosulphuret of ammonia, which forms so considerable a part of the liquor, and when it is neutralized with sulphuric and muriatic acid, sulphuretted hydrogen is given off in such abundance as to blacken the silver coins and watches on the persons of the bystanders, and even (along with the carbonic acid simultaneously evolved) to render them temporarily insensible if they incautiously respire the gases. Yet no special malady is known to result from this exposure, and the Bonnington Works enjoy the reputation in the neighborhood of protecting it from the inroads of endemic and epidemic diseases. Similar observations as to the non-deleterious effects of exposure to comparatively large volumes of sulphuretted hydrogen have been made at the metal works, where a superficial tarnish of metallic sulphuret is removed by washing with acids, and the workmen are freely exposed to the sulphuretted hydrogen evolved. I need not say, that I do not wish to affirm that this gas or its combination with ammonia, is not a powerful poison, if respired alone, or to deny that the continued entrance of either into the body, must debilitate it and prepare it for yielding to the attacks of disease. But that it is the cause of the fevers, which a very short exposure to the so-called malaria of certain districts infallibly occasions, I altogether disbelieve.

The alleged noxiousness of diluted marsh gas (light carburetted hydrogen), admits of more easy disproof, for were it the deadly agent it has been declared to be, our colliers, who are exposed in coal pits to much larger volumes of it than any other class of persons, should be to a corresponding extent sufferers from the diseases which it is supposed to occasion; but, unless when its mixture with air explodes, it is destitute of any injurious action on the pitmen, who are a healthy class of the community.

Another disease—namely, influenza—has been imputed by high chemical authorities to the diffusion through the atmosphere of a peculiar gas; Dr. Prout regarding seleniuretted hydrogen as its cause, Schönbein attributing its production to ozone. There is no evidence that either of these views is true, but much may be said in favor of the latter. The last severe epidemic of influenza spread over Europe with a rapidity which almost seems to point to a gas as the medium of its propagation. No one, however, has detected seleniuretted hydrogen in the atmosphere; and air largely impregnated with ozone may be breathed with an impunity which throws grave difficulties in the way of Schönbein's hypothesis.

Whilst thus, with the exception of influenza (if it is be excepted,) no gas is known to possess the power of developing an infectious or contagious endemic or epidemic; on the other hand, as Professor Graham has justly remarked, such infectious matters as are accessible to us, for example, "the matter of cow-pox, may be dried in the air, and is not in the least degree volatile. Indeed, the volatility of a body implies a certain simplicity of constitution and limit to the number of atoms in its integrant particles, which true organic bodies appear not to possess. Again, the source of such bodies being at all times inconsiderable, they would, if vapors, be liable to a speedy attenuation by diffusion so great as to render their action wholly inconceivable. It is more probable that matters of contagion are highly-organized particles of fixed matter, which may find its way into the atmosphere, notwithstanding, like the pollen of flowers, and remain for a time suspended in it."

To these statements it may be added, that all chemists now acknowledge that volatility is not essential to the transference of solid bodies to the atmosphere, at least so far as those soluble in water are concerned; for observations on the largest scale have shown that the vapors of volatile liquids carry with them sensible quantities of all the solids which they dissolve; common salt, nitrate of potass, boracic acid, phosphoric acid, afford marked examples of this; but the list of salts soluble in water which accompany its vapor at temperatures at which when dry they are fixed, is endless.* The significant word "*Malaria*," therefore,

* In virtue of this we may anticipate the administration of other medicines than anæsthetics by the lungs, although they may not be volatile. In cases of poisoning it would be of the greatest importance, if we could directly transfer to the blood an emetic or purgative, which we may hope to do along with the vapor of its solvent, aqueous or non-aqueous. Such a process, however, would be applicable only to medicines which act powerfully in small doses.

which embodies in a single term the evil reputation which the air or atmosphere has acquired, as the vehicle of contagion, may still, if we choose, be retained, although we acknowledge that all accessible contagious matters are non-volatile liquids or solids. It may further be added, that with the questionable exception of influenza, no endemic or epidemic spreads with the rapidity and equability, so far as area of occurrence is concerned, which would characterize it, if it were occasioned by a gas subject to a force so powerful as that of gaseous diffusion. Professor Graham's argument is still more cogent, for, according to his views, if infectious matters were truly gaseous, we should never have endemics or epidemics, unless those matters were developed in immensely larger quantities than by universal acknowledgment they are. In truth, they elude every test, even when applied to large volumes of the most infected atmospheres.

From all that has been stated, it must be inferred, according to our present knowledge, that at least the great majority of the substances which are intended to be reached by disinfectants, are not volatile, and therefore are much less easily decomposed than if they were gases. We may also with reasonable confidence affirm, that they are organic products, and as such consist of carbon, hydrogen, oxygen, and nitrogen, or at least of two (if not always of three) of these elements; and that, like all such compounds, they are readily decomposed by chemical reagents, especially oxidizing ones. There is no reason to imagine that infectious matters are difficult to decompose, *provided we can reach them*. The difficulty lies in reaching them. Assuming then that contagious matters are not volatile, and that they contain (to take the most complex case) carbon, hydrogen, oxygen, and nitrogen, the principles which are to guide us in the application of chemical disinfectants, will not be far to seek. Oxidizing agents will plainly be of great value as they can readily convert hydrogen into water, and carbon into carbonic acid, and thus disintegrate and destroy the morbific matter. Substances having a great affinity for hydrogen, such as chlorine and its class, will plainly also be of great service. Substances having an affinity for oxygen will also be applicable to the destruction of organic poisons; and, finally, all reagents which by contact with organic matter can determine a new arrangement of its ultimate elements. All the powerful chemical disinfectants act in one or other or all of those ways. I shall refer to five of the disinfectants: 1, quicklime, including caustic potash and soda; 2, nitric acid; 3, chlorine; 4, aqua regia; 5, ozone. The value of *quicklime* and of the *caustic alkalies* as disinfectants, has certainly not been overrated, although it may be questioned whether our sanitary authorities have been wise in trusting to lime alone as a purifier. From the careful study of the process of natural and artificial nitrification, and from the results of the application of soda lime in organic analysis, we have learned that the caustic alkalies and alkaline earths decompose organic matter with the evolution of ammonia, which by oxidization may become converted into nitric acid. Woodwork or stone floors, to which a coating of limewash cannot be applied, requires only to be

washed with caustic soda or soft soap, to obtain an effect identical with that which lime occasions.

2. *Nitric Acid* seems latterly to have fallen into disrepute, but certainly undeservedly. It acts more rapidly on many organic compounds than chlorine does, attacking their carbon as well as their hydrogen, and as it is not required in large quantity its application is not costly.

3. *Chlorine.*—Of chlorine, which is at present the favorite disinfectant, it is needless to speak. Its peculiar power of decomposing combinations of hydrogen, gives it, in one respect, a superiority over nitric acid, which does not decompose many of the gaseous hydro-carbons; but it should not be forgotten that it is only in the presence of light that this action of chlorine is fully displayed, so that its disinfectant influence is comparatively small in the case of dark or ill-lighted apartments, such as underground cellars, the lower cabins, or the hold of a ship, which are the very places where disinfectants are often most wanted

4. *Aqua Regia*, as uniting the properties of nitric acid and of chlorine; each of which has peculiar virtues, the former in particular being a wonderful oxidizing agent, the latter possessed of a great decomposing action over hydro-carbons, appears entitled to a high place among disinfectants. It can be cheaply procured by pouring oil of vitrol on a mixture of nitric acid and common salt, or by heating a mixture of nitric and muriatic acids.

One of the most rapid and effectual methods of disinfecting a large empty apartment, such as an hospital ward, would be to place in one corner a vessel containing the materials for chlorine, such as oxide of manganese and hydrochloric acid, or oxide of manganese, common salt, and oil of vitrol; and in another corner a vessel containing nitric acid and a few fragments of copper, so as to evolve nitric oxide, which would spread through the apartment and form nitrous acid there, oxidizing everything oxidizable which it contained, whilst the chlorine specially attacked the hydro-genous compounds. The walls might then, if necessary, be lime-washed, with a view alike to destroy any adhering organic matter which had resisted the action of the gases, and to neutralise any traces of free acid.

5. The last of the disinfectants proper to which I refer is the singular substance ozone, which has a special interest, as being in all probability the great natural disinfectant. Its nature is still matter of speculation. Schönbein, its discoverer, regards it as a peculiar oxide of hydrogen; Berzelius and Faraday represent it as simple oxygen in a peculiar (or allotropic) state of modification; it has been suggested that it is an oxide of nitrogen; and quite recently M. Fremy has affirmed it to be what he calls "electrized oxygen,"—*i. e.*, oxygen modified in properties by the action of electricity upon it; a view not materially differing from that of Berzelius and Faraday. There are difficulties in the way of all these views, into which it is not necessary to enter. All that concerns our present subject is that, by different processes, a substance can be developed in the atmosphere which possesses remarkable disinfectant and oxidizing properties. The oldest known method of producing the so-called ozone, is the exposure of air to a stream of friction or high

tension electricity. Its odour may always be recognized in the neighborhood of an electrical machine whilst at work. Another method is the galvanic decomposition of water, when the ozone accompanies the evolved oxygen. A third, and the most convenient method on the small scale is the exposure of phosphorus in moist air. By these processes and certain others, air is made to acquire a striking power of oxidizing, bleaching, deodorizing, and disinfecting. We cannot doubt that every thunder-storm developes some ozone, and other processes also probably produce it. At all events the atmosphere frequently exhibits an oxidizing and bleaching power, at other times absent, which Schönbein, Faraday, and others, attribute to the development of ozone within it.

No one who has experimented on ozone will doubt its potency. I refer to it here because there are so many reasons for believing that it is the agent which prevents the accumulation in the atmosphere of volatile organic bodies, by converting them into water, carbonic acid, nitric acid, and ammonia, that we cannot avoid looking hopefully to it as destined to prove our disinfectant *par excellence*. Certain as we are that for thousands of years miasmata, malaria, poisonous effluvia, and every gas, vapor, and volatile body developed at the surface of the earth, must have found their way into the atmosphere, and that nevertheless its purity is not sensibly affected, we must regard the constituent or condition of the air, which has secured its purity during centuries, as one demanding special study. Further this constant process of disinfection has not interfered with the respiration of animals, so that we may fairly regard ozone as a substance applicable as a disinfectant in places occupied by human beings or by the lower animals. It is true that the power of producing influenza or catarrh has been attributed to ozone in excess; on grounds, however, almost entirely speculative. This view may or may not be true; but of this I am quite certain, that the well known impunity with which electricians expose themselves for hours together to the action on the atmosphere of large friction machines, which the dullest nostril can discover to be producing abundance of ozone, is enough to show that a large impregnation of the air with this substance, neither affects respiration nor produces catarrhal affections. We ought, therefore, I think, to give special attention to ozone. It is not likely that we shall be long without discovering new processes for its production. It will be specially valuable for what are the most important, and, at the same time, the most difficult occasions for disinfection—namely, where human beings cannot be removed from infected apartments. Examples of such cases are found in a large ship at all times, and still more when its crew and passengers are attacked by disease; in the wards of an hospital, from which the sick cannot be taken; and perhaps most strikingly in a large factory, where hundreds of persons assemble daily together, many of most uncleanly habits, and at epidemic seasons fresh from infected rooms, whilst the apartments contain valuable metallic machinery, and fragile silk, cotton, linen, or woollen goods, which interpose an additional obstacle to the free employment of gaseous disinfectants. The condition of our ships as regards ventilation and wholesomeness is proverbial; and on inquiry of

residents in Manchester and Glasgow I find, that where disinfection has been attempted in factories—which it rarely has—it has consisted in sending a man once a day through every room with a quantity of blazing pitch, which was supposed to fumigate into purity the atmosphere, whilst it set all the workpeople coughing.

How difficult it is to prevent the spread of erysipelas, gangrene, fever, and the like in hospitals, every medical man knows too well. Ozone at least deserves a trial as a disinfectant in such cases.

Antiseptics.—The only antiseptics to which I shall refer are two. The first is sulphurous acid; it is a powerful antiseptic, for it resists thoroughly the decomposition or decay of organic matter. In reality, however, it as much resists the development as the decay of organic bodies, and thus it doubly prevents the evolution of organic poisons. Dr. Christison long ago pointed out how small a quantity of this acid is sufficient to destroy plants. In the wine countries it has been used from time immemorial to prevent the souring or acetification of the lighter wines, when kept in casks partly filled. Professor Graham, who strongly recommends it as a disinfectant, draws attention to the fact that at Manchester the offensive effluvia of the cochineal dye vats, which resist the action of chlorine and nitric acid, are at once destroyed by sulphurous acid. My own attention was directed to it from the employment of it on a large scale by paper-makers and others to secure the preparation of pure gelatine, a substance peculiarly liable to enter into putrefaction. Sulphurous acid can be easily prepared by burning sulphur, or by heating oil of vitriol, along with charcoal or vegetable matter. Its corrosive action is very slight; its disinfecting action very powerful. The sulphite of soda is now prepared in quantity at different chemical works. The addition of a stronger acid sets free the sulphurous from its salts. As to its mode of action, if we concur with Liebig in believing that morbific matters resemble ferments in being active, only whilst undergoing a decomposition which is mainly determined by the oxygen of the air, we may suppose sulphurous acid to render the poisonous matter inert, by preventing its oxidation. This acid, moreover, is a powerful deoxidizing agent, and it may be by removing oxygen from organic poisons that it renders them inert, by decomposing them.

Further, sulphurous acid can combine with certain elements of organic bodies, as we see in its temporary bleaching action on vegetable colors; and it may be thus that it neutralizes morbific matters. In one or other or all of those modes, this agent may act as a disinfectant; but at all events its action is very powerful, and it deserves much more attention than it has received.

The only other substance to which I shall at present refer, is pitch oil, one of the products of the distillation of tar. It is an antiseptic of the most powerful class, and very cheap, and if not used in excess, it is applicable as a deodorizer; but its own strong tarry smell interferes with its extensive use.—*Pharm. Jour.*

Test for the Presence of Mercury.—If a strong solution of iodide of potassium be added to a minute portion of any of the salts of mercury, placed on a sheet of bright copper, a white metallic silvery stain will be developed, which cannot be mistaken, as no other metal presenting a similar appearance is deposited by the same means. In this way corrosive sublimate may be detected, in a solution unaffected by potash or iodide of potassium. In a mixture of calomel and sugar, in the proportion of one of the former to two hundred of the latter, a distinct metallic stain will be detected with one grain of this mixture, containing but 1-200th of its weight of calomel; and the binoxide of mercury can be thus detected, if mixed with 400 times its weight of sugar. This valuable test we owe to Mr. Arthur Morgan.—*Annals of Pharmacy, from London Journal of Medicine.*

Reagent to detect the quantity of Urea in the Urine.—Mr. Liebig has recently made known the following prompt and easy way of detecting the quantity of urea in the urine. First prepare a neutral solution of nitrate of mercury in distilled water, to be kept by itself, and add a little of this gradually to the urine to be examined, until no further precipitate takes place. The quantity of the solution necessary to this result is, to a certain point, the measure of the proportion of urea. But the precipitate, which is formed, is composed of one equivalent of nitric acid and three equivalents of bi-oxide of mercury; hence for every equivalent of urea precipitated, there will be three equivalents of free nitric acid in the liquid. But the presence of this free acid interferes with the further formation of the nitrate, so that when precipitation has ceased, there is still more or less urea which has not entered into the new combination, and which can only be precipitated after the free acid has been saturated. This is accomplished by a solution of barytes, which must be gradually added so as not to exceed the limit of saturation. A fresh quantity of the solution of nitrate of mercury must then be added to produce a new precipitate; and thus, by the successive additions of this solution and of the solution of barytes, the whole of the urea contained in the urine will be precipitated. The quantity of the solution of nitrate of mercury used thus forms a sufficiently accurate measure of the quantity of urea in the urine.—*Bull. de Thér.*—*From Gaz. des Hop.*, 37 *Juillet*, 1852.

MATERIA MEDICA AND THERAPEUTICS.

On Adulteration of Sulphate of Quinine. By Dr. Moll.—The excessive price of the true cinchona, the calisaya of Bolivia, has led to the substitution of many inferior kinds, chiefly remarkable for their containing large proportions of *quinidine*. In consequence of their lower price they have obtained admission to the quinine manufactories in large quantities, and much of the sulphate now produced is depreciated by the addition of quinidine. This substance differs from the sulphate of quinine by its greater specific gravity and less flocculent crystalliza-

tion, and it is much more soluble than it is in water and alcohol. The addition of both *cinchonine* and *quinidine* may be detected by means of ether; for while cinchonine is almost insoluble in this substance, quinidine is so in a far less degree than is quinine, inasmuch as sixty drops of ether and twenty of ammonia will dissolve ten grains of quinine and only one grain of quinidine. On the addition of these quantities of sulphuric ether and liq. ammonia, to ten grains of quinine, with ten drops of dilute sulphuric acid, and fifteen of water, all will remain dissolved, unless cinchonine, or more than ten per cent. of quinidine be present, the mechanical impurities only appearing at the surface. If 10 per cent. of quinidine be present in the ethereal solution, it will soon crystallize on the surface of the ether. Traces of this substance can be yet more certainly discovered if ether saturated with quinidine be employed, when all that exists in the suspected salt will remain insoluble. If the powder contain cinchonine or more than 10 per cent. quinidine, it will remain undissolved at the line of demarcation of the two fluids. If it be quinidine, it is soluble in additional ether, which cinchonine is not.

To establish the purity of quinine, we must also assure ourselves of the absence of *inorganic* substances, by calcination in platina, or by a solution of the salt in alcohol. Sulphate and carbonate of lime, magnesia, &c., remain undissolved, while boracic acid, though soluble, betrays itself by its blue flame on conflagration. The absence of *organic* substances, as salicine, sugar, starch, stearic acid, is known by the colorless solution which takes place in concentrated sulphuric acid. The presence of *ammoniacal salts* is revealed by the odor which ensues on the addition of caustic alkali.—*Brit. and For. Med. Chir. Rev. from Revue Medico-Chirurgicale.*

Experimental Inquiry concerning the question, whether the Purgative Action of the Neutral Salts is the effect of Endosmosis? By Dr. H. AUBERT.—Aubert made his experiments with the purpose of examining the correctness of the view spread under *Liebig's* authority ("Untersuchung der Mineralquelle zu Soden und Bemerkungen ueber die Wirkung der Salze auf den Organismus"—*Wiesbaden*, 1839), that the purgative action of the neutral salts is a merely physical process, being the consequence of exosmotical transudation from the walls of the intestinal tube, effected by the more concentrated solution of these salts within the cavity of the tube. The experiments were instituted in the following manner:—Solutions of different neutral salts were put into a cylindrical glass tube, the lower end of which was covered with a piece of membrane, from a pig's bladder; then the tube was immersed into serum of blood, and the changes going on in the solution within, and the serum without, were examined at different intervals. Another series of experiments were made by taking internally solutions of these salts. As the result of both series, Aubert draws the following inferences:

1. The purgative effect is not influenced by the degree of concentration of the solution; the number of stools produced by a certain quantity of salt will be the same, whether the salt is dissolved in six or seventy-

two ounces; the water of the solution is excreted by the kidneys; the salt exercises its influence on the bowels. 2. No albumen is found in the alvine excretions, as ought to be the case, if the action of the salts was an endosmotical one. 3. The quantity of salt excreted through the urine, compared with the quantity of water contained in the discharge from the bowels, is not that which it ought to be, according to the laws of endosmosis and exosmosis (as much, at least, as they are known at present). 4. Peristaltic motion of the bowels is constantly excited by the neutral salts; the rolling and rumbling, which Aubert always observed soon after taking the salts, as well in a concentrated as when in a diluted solution, is attributed by him to the action of the salts on the nerves of the intestines, and to the reflex motion excited in consequence of this. 5. A part of the *sulphate of magnesia* appears to be decomposed within the organism, as the magnesia is excreted in a larger proportion than the sulphuric acid with the fæces; the sulphuric acid in a larger one than the magnesia with the urine. 6. The remedy produces the characteristic effect on the bowels, when a solution of it is merely infused into the veins of an animal.

It must be, however, remarked here, that *Liebig* himself, in a work of a later date, ("Untersuchungen ueber einige Ursachen der Saeftebewegung im thierischen Organismus," 1848,) states, that he does not intend to explain the whole action of the neutral salts by endosmosis, but that he considers this to be one of their influencing qualities.—*Ibid, from Henle und Pfeufer's Zeitschr. fur Ration. Medic.*

Zinc Ointment.—Our attention has been directed to the following remarks of Dr. Copland, Part xvi. of his *Dictionary of Practical Medicine*, p. 935, on the subject of zinc ointment:—

"Great care should be taken in this affection, as well as in others for which ointments may be required, that they be recently made. In a case to which I was lately called, the zinc ointment was prescribed after the use of emollient applications, and was found quite rancid and most injurious at *five different Chemists* in the outskirts of the town where it was had; but when this ointment was procured from a respectable Chemist in town, it was quite successful."

To guard against a recurrence of this accident, we would suggest that where the demand is small, it would be better not to keep the ointment ready, but to mix it when wanted.—*Lond. Pharm. Jour. January*, 1853.

Hospital Sulphate of Quinine.—Mr. Edward Herring has introduced a preparation under this name, consisting of disulphate of quinine only partially purified. In its medicinal properties it is said to differ but little from the ordinary disulphate. It has a brownish color, and is of course not admissible as a substitute for disulphate of quinine in general dispensing, but it has been tried in hospitals and dispensaries, and by some medical men who dispense their own medicines. The preparation is recommended on account of its economy. The final purification and decolorization of the salt being attended with some expense, the manu-

facturer is enabled to offer it in a partially purified state at a considerable reduction from the price at which it can be sold when purified in the usual way. The amount of impurity must be ascertained before its real value can be estimated. It may be a question whether the recognition of a preparation so imperfectly purified might not open the door to some abuse.—*Ibid.*

Generation of Oxalic Acid in Syrup of Sesqui-Nitrate of Iron.—Mr. J. LAIDLEY, of Richmond, Va., has shown, in an interesting paper in the last number of the American Journal of Pharmacy, that the *syrup* of *sesqui*-nitrate of iron is an unscientific and ineligible preparation; for, without an excess of acid, it is a mixture of proto and per-nitrate, and with that excess the acid generates oxalic acid. When a syrup of nitrate of iron is wanted, the *proto*-nitrate should be employed; in it there is no excess of acid to act on the sugar, which is employed to prevent peroxidation of the iron, and it is not only permanent but pleasant to the palate.

Compounds of Iodine with Quinine and Morphine.—Two compounds are announced in the *Jahrbach fur Prakt. Pharm.* (as we find in the last number of the Amer. Jour. Pharm.) as salts of Quinine and Iodine, and Quinine and Morphine, respectively. These compounds must, however, be iodohydrates of quinine and morphine, and not iodides.

The best Means to preserve Leeches Healthy. By GUSTAVUS SCHULER.—The apothecaries in Moldavia are, according to the sanitary laws, compelled to keep constantly a stock of at least 300 healthy and serviceable leeches. But, particularly as the hot summer months are the most prejudicial season for these animals, it often happens that in the time of the greatest need no leeches are to be obtained.

Amongst the various means which have been recommended to keep leeches healthy, and to restore the sick ones, good well-burnt wood charcoal has proved, according to my experience, to be the best, as shown by the following experiment. I washed the charcoal well three or four times with fresh spring water, to separate the adhering ashes, and then laid it, while wet, and without breaking it smaller, in a large glass cylinder; put the sick leeches, recently washed, into this cylinder, but did not give them any more water, as enough was to be found in the washed charcoal. The glass was tied over with a piece of linen and placed in a cellar, where for five days the leeches were resigned to their fate.

After this period I found the leeches, to my satisfaction, perfectly well. They were quite in a condition to be used, which was not the case in their sick condition.

For two years I have treated my leeches in this way, and always retained them healthy and serviceable. The number of deaths amongst them has been very small. The only precaution I observe is to place all my leeches for eight days in summer on recently washed charcoal, and for two weeks in winter. The method is a cheap one, and one easy of execution.—*Buchner's Repertorium, from Annals of Pharm. for Aug.* 1852.

Ol. Morrhuæ.—In Sweden, cod-liver oil has for some time been employed as an external application in the treatment of cutaneous maladies, and from that country it has recently been introduced into English practice. We have had frequent opportunities of watching its effects as prescribed by Mr. Paget, in the out-patient's room of St. Bartholomew's Hospital. The class of cases for which it appears most applicable, is that of chronic eczematous eruptions, unattended by acute inflammation of the skin or general pyrexia. In abating the troublesome itching which frequently accompanies this disease, especially in old people, it has manifested powers decidedly superior to those of any other application with which we are acquainted. In the majority of instances it can, of course, only be expected to assist constitutional treatment, not to supersede it.

We have as yet had no opportunity of forming an opinion respecting the proposed inunction of the oil in cases of phthisis, where the stomach cannot take it. Whilst on this subject, however, we feel inclined to strongly recommend the practice of exhibiting it *simultaneously with tonics*, as iron, quinine, etc., which is now adopted with great success at several hospitals. The digestion and assimilation of the oil appears to be much aided by such combination. In the treatment of cutaneous struma and lupus at the Hospital for Skin Diseases, it is usual to administer along with the oil small doses of mercurials, which are often continued for many months. The success attending this practice is very great, and appears to much exceed that which results from the administration of either drug alone.—*Lond. Med. Times.*

Ammonio sulphate of Copper.—At the Westminster Hospital, Dr. Hamilton Roe has recently employed this salt very successfully in the treatment of a series of cases of severe cholera, the patients being mostly children under fourteen years of age. In several the sulphate of zinc and sesquichloride of iron had been tried previously, and without benefit. The dose given has been from half a grain to a grain three times daily. Its use in this complaint is not novel, although not much resorted to in this country. In Italy it has gained a considerable reputation, and is known by the name of the "specific of Stissero." Mr. Startin has for some time been accustomed to prescribe a long continued course of the ammoniated copper in malignant diseases, and seemingly with some good results. Its action is probably that of a tonic. In several cases the health of the patient has appeared to improve very perceptibly. Scirrhus of the breast and cancroid ulcers of the skin are the forms in which it has principally been tried. The dose has ranged from the eighth to a quarter of a grain three times daily, and has often been continued for many months. We believe it has been employed for nearly similar purposes in veterinary medicine.—*Ibid.*

Infusion of the leaves of the Ash-tree (Fraxinus polygamie) in the treatment of Gout and Rheumatism. By Drs. POUGET and PEYRAUD.—The most useful acquisitions in materia medica are due generally to

chance, or, rather, to a protective Providence over human health; *e. g.*, the antiperiodic properties of cinchona.

In 1842, Dr. Peyraud experienced his first attack of gout, for which he employed the usual remedies. The attack lasted twenty-five days. During the three following years the disease increased both in frequency and violence, and the patient went through the several forms of treatment without finding relief. He heard, by accident, that the infusion of the ash-leaves had long been considered a specific in the department of Dordogne, and that the peasantry of the district used it to "chase away their pains." Dr. Peyraud found it upon trial so useful that he had but one attack of the gout from 1845 to 1849.

M. B., a merchant of Bordeaux, was seized with an attack of gout, for the first time, in the right foot. He was ordered infusion of ash-leaves; upon the second day he was able to come down stairs and to leave his house. Ever since, he has had recourse to the same remedy with good effect upon experiencing premonitory symptoms, such as headache, loss of appetite, etc. The same success followed its administration in cases of acute articular rheumatism. A house-painter, aged 23, had, upon several occasions, suffered from acute articular rheumatism, accompanied by endocarditis, which prevented his following his occupation for four months or more. December 25, 1849, he had pain in the articulations of the feet, knees, and wrists, with swelling, accompanied by difficulty of respiration and inability to lie down. December 30, he was so weak that it was thought better, before bleeding him, to try the infusion of ash-leaves. In about twelve hours, and after the third dose, the patient was able to breathe easier, and there were fewer precordial pains. On the fourth day, the articular pains had diminished in intensity, the respiration was freer, and the appetite had returned. Jan. 22d.—He was able to resume work. The authors now administer it in the form of a fine powder in preference to the infusion. Other cases are related in the Essay.—*Op. cit.*, Nov. 1852.

PATHOLOGY AND PRACTICE OF MEDICINE.

Contribution to the Pathological Physiology of Pneumonia. By Dr. G. ZIMMERMANN.—Zimmermann considers the most minute observation of the natural course of acute disease to be the only way of elucidating the laws of these typical processes. Although he thinks those cases most fit for the purpose in which no remedies are employed, yet he does not at all exclude those in which the treatment is active. As an instance of how to observe, he describes the course of a case of pleuropneumonia, treated by repeated venesection, application of blisters, and internal administration of antiphlogistic remedies, in moderate doses. From the first day of the fully established disease, till after the return of convalescence, he has noted twice daily (at 8 A. M. as the time of remission, and between 5 and 6 P. M. as the time of exaeerbation) the temperature under the tongue, the frequency and other qualities of the pulse, and the number of inspirations on almost every day, the quantity

of urine secreted in 24 hours, its specific gravity, and the quantity of lithic acid contained in it. Of great interest are the *critical symptoms*, remarked on the 3d and then again on the 9th day, after which we observe a steady progress to convalescence. The first note on the *temperature* was taken four hours after an attack of general vehement rigors, which the patient himself considered as the commencement of the disease; it was then as high as 103°10, which, being 4°14, over the normal warmth of that individual (98°96,) makes Zimmermann inclined to conclude, that the disease had commenced before the occurrence of the rigors. Between the evening of the 2d and the morning of the 3d day, a decrease from 104°0 to 99°87 was observed, coincident with a general abatement of the constitutional symptoms of pyrexia, but on the evening of the 3d day, the temperature was again as high as 105°80 and the physical examination exhibited the signs of hepatization, which had not been present in the morning. Between the evening of the 8th and the morning of the 9th day, the warmth had decreased from 106°16 to 99°50: at the same time all the other febrile symptoms disappeared almost completely, after they had reached a very high degree on the two previous days. It is interesting to remark, that although the frequency of the pulse did not exceed the normal average after that period, yet the temperature increased again to 102°20, and remained so for more than a fortnight longer. The entrance of the change on the 9th day, does not appear to Zimmermann as merely accidental, but he looks at this day as a critical one; and also the coincidence of several alvine evacuations effected by calomel seems important to him, as he thinks that the crisis may be promoted by our remedies, if their action takes place shortly before or on the beginning of a critical day. Concerning the *urine*, the quantity secreted in twenty-four hours was between 9040 and 29,030 grains; the minimum is noted on the 5th, the maximum on the 9th day; the average quantity of 24 hours before the 10th day, was 15,215 grains, with an average specific gravity of 1·0198; between the 10th and the 40th day, 16,510 grains, with 1·0208 specific gravity. The quantitative examination for *urea* was not made before the 8th day, on which 1081 grains were contained in the urine in 24 hours; on the 9th day, only 884 grains; and a few days later, not more than 400 grains (which is about the average quantity during health—*Lehmann*, Physiol. Chem., vol. i. p. 167.) The quantity of *uric acid* was almost normal during the commencement of the disease, but after the sixth day it appeared considerably increased, and reached the maximum on the 9th day, when it amounted to 3770 grains in twenty-four hours (which is at least three times more than the average during health—*Lehmann*, l. c. p. 217.) Zimmermann considers this increase of the uric acid and its salts, at the period of the critical change, as important for the doctrine of *crisis*, as he had opportunity to observe the same phenomenon, not only in pneumonia, but also in typhoid fever, ague, measles, &c. From three examinations of the blood obtained during the first seven days in this case, and from his previous experience, Zimmermann considers as the most important changes in the *inflammatory blood*—that it is less coagulable than the blood in health; that the quantity of fibrine is aug-

mented; that the colored blood-globules are diminished in number, and possess an abnormal disposition for the formation of rolls; that the colorless globules are found in an increased proportion, and snow, likewise a tendency to join in groups.—*Brit. and For. Medico-Chirurg. Rev.*, from *Prager Viertiljahrschrift.*

Virchow's Views on Tubercle.—Virchow, in late papers on this subject, advances the opinion that tubercle is the result of a metamorphosis of organized elements. The following is the summary of his views.

"1. Tuberculization, the indubitably local process by which the body described by the name tubercle is formed, is not a peculiar specifice exudation, but a peculiar transformation of tissue elements, such as in 1847 I described in regard of cancer under the name of tuberculous metamorphosis.

"2. The tuberculous metamorphosis is therefore co-ordinate with the fatty and the waxy metamorphosis, calcification, and atheromatous degeneration, but in no way co-ordinate with inflammation or serous effusion, and even less so with suppuration or with cancerous formation.

"3. The tuberculous metamorphosis sometimes affects newly-formed pathological tissues, sometimes the primitive, the so-called physiological tissues, and finally, sometimes it affects both old and new simultaneously, and this last is its ordinary and peculiar characteristic. The tuberculous metamorphosis attacks cellular and transitory as well as fibrous and permanent elements.

"4. The tuberculous metamorphosis consists in a cessation of the nutritive and formative processes, in a mortification, death of the elements of the tissue, with subsequent peripheric absorption of the fluid constituents, and drying-up of the parts lying beyond the sphere of nutrition; the death itself of the elements of the tissue is caused by the accumulation of cell-elements, and is immediately determined by compression of the vessels of the part.

"5. These cells may arise from an absolutely new formation, or from an increased formation of the normal elements (epithelia, enchymkömer, &c.,) or, finally, from an endogenous formation (ans einer endogenen Bildung.)

"6. All these processes presuppose definite disturbances of the local nutrition, especially an altered exudation, and point back, accordingly, either to inflammation itself or to an analogous affection, no matter whether they owe their origin to an irritation produced by local mischief, or to an excitation consecutive to constitutional causes, primary changes of the blood, &c.

"7. There is therefore an inflammatory, cancerous, typhous, glanderous, sarcomatous, &c. tuberculization, which are altogether the same in reference to the essence of the local process, so far as this depends on tissue metamorphosis, but which are more or less different in reference to the essence of the whole process, as well so far as the latter is local (disturbance of nutrition, exudation, &c.,) as also when it is due to general constitutional causes.

"8. Tuberculosis is the whole process of the affection, comprising the conditions of the local disturbances of the process of nutrition with the

changes appertaining to it in the exudation, both in regard of the cell-formation and transformation, and finding in tuberculization its constant regular expression. Every tuberculization (tuberculous metamorphosis) does not have its origin in tuberculosis; tuberculosis can be present, as far as its early stages (exudation, cell-formation) are concerned, and yet there may be no tubercle. We shall therefore call that diseased process tuberculosis, which in its ordinary course always leads to tuberculization; while we shall ascribe cancer and sarcoma, which accidentally tubercularize, to an altogether different process, and shall never give the name of tubercle to a thickened abscess, pus become cheesy, or pus concret.

"9. Scrofulosis is the constitutional affection which, after glanders and typhus, the most frequently produces tuberculosis—i. e., the local disease with the regular termination in tuberculization. But all its products are not tuberculous; tuberculosis is rather co-ordinate with a succession of other local processes.

"10. As tubercle is everywhere formed by the accumulation in the tissues of cells of the most varied kinds, these cells in the majority of cases breaking up, it has no peculiar characteristic elements. The shrivelled nuclei arising from the remains of the cells exhibit the greatest degree of constancy in their outward characters, and therefore we can retain for them the name of tubercle-corpuscles."—*Brit. and For. Med Rev.*

Silicious Deposit in the Urine, supposed to be from the use of new sponge. By HENRY JOHNSON, M. D., Senior Physician to the Salop Infirmary. Silicic acid is a well-known constituent of natural urine and of urinary calculi; and it is always found in urinary concretions derived from brutes, according to Wurzer and Lapaigne. But although, on the authority of these names, the occurrence of silex in urinary deposits and concretions may be deemed possible, this event is at any rate extremely rare, and, unless under peculiar circumstances, would be ascribed to accident, fraud, or mistake. I have, however, seen it, where the parties were far above all suspicion of any intention to deceive, and where the patient was too young and *girlish* to be the subject of that morbid *pruritus*, which probably leads to the *voluntary* introduction of foreign substances per vaginam.

As every case is of importance which proves a fact, or points out an obvious source of error, I think the following history is worth recording:—In 1850, I was desired to examine a small portion of white powder, which I understood was a deposit from urine; it had all the chemical characters of *silex*, and scratched glass with facility. I was informed, that notwithstanding every precaution having been taken to avoid error, more or less of this powder had been found at the bottom of the utensil for about a fortnight. I afterwards saw the patient. She was 11 years old, of spare habit, but tall for her age, and by no means strong. She was subject to sickness and anorexia; the bowels were torpid; the tongue was not clean; the catamenia had never appeared. At the time of my seeing her, the silicious deposit had ceased. The urine was pale, had a specific gravity, verging from 1011 to 1031, there was a light mucous cloud in it, and it contained some prismatic crystals of triple phosphate, and on another occasion urate of ammonia and a large quantity of urea.

The most distressing symptom was a most constant desire to pass water, by day and by night, so that she could not rest, and if the desire was not speedily gratified, the urine escaped involuntarily.

There appeared to be no organic disease present in this case, and the patient ultimately got well without any remarkable symptom or treatment. I feel quite satisfied that there was here no endeavor to impose upon her medical attendants, either on the part of the patient or her friends. The silicious deposit I have no doubt arose from the use of a *new sponge*. A silicious powder (quartz) is always found in sponge when new, and I have since seen a large quantity of this sort of dust, which had fallen out upon the shelf in a chemist's shop where these articles were kept; it is nearly pure silex, because sponges are prepared for sale by being soaked in dilute muriatic acid, which removes calcareous particles, and leaves such as are silicious.—*Prov. Med. and Sur. Jour.*

The Respiration in Pressure on the Brain. By Dr. LANDGRAF.—Dr. Landgraf calls attention to the state of the respiration, in cases of cerebral pressure. It is frequently not stertorous and labored, as described in books, till the agony; but it is interrupted; that is to say, after from six to twelve tranquil and easy respirations, a long pause insues. The author details cases in proof of the existence and diagnostic value of this sign.—*Ibid., from Deutsche Klinik*, 1852, p. 39.

Temporary Albuminuria. By Dr. BEGBIE.—Dr. J. W. Begbie alludes to the phenomenon of albuminuria in the following diseases:

1. *Scarlatina Simplex.*—He confirms his former statement that about the period of desquamation, albumen can *almost* always be found; its presence is associated with renal epithelium, but not with casts of tubes.
2. *Cholera.*
3. *Erysipelas.*—Usually at resolution or during convalescence. Its presence is not constant, nor its quantity great.

The albuminuria in these three cases is called *desquamative.*

4. *Scarlatinal Dropsy.*—The albuminuria may, or may not, be temporary—blood exudation corpuscles, and casts of tubes, accompany it.

The albuminuria in this case is termed *inflammatory.*

5. *Pneumonia*, at the period of resolution, in almost all cases.
6. *Typhus* and *Typhus Abdominalis* (typhoid.)—From a consideration of the period when the albumen is observed in these last-named diseases, Dr. Begbie terms it *critical albuminuria.—London Monthly Journal*, Oct. 1852.

On Albumen in the Urine of Various Diseases.—Heller asserts that albumen is present in the urine in all kidney-lesions, though sometimes in small quantity, and that it exists in many other diseases, and often in greater amount.

1. *Pneumonia* and *Tuberculosis acuta.*—At the commencement of exudation, while yet the chloride in the urine is in undiminished quantity, no albumen can be found. As exudation increases, and as the chloride in the urine diminishes, a very small quantity of albumen appears,

and continues for a long time. This appearance is not constant, but is very frequent. The greater the albumen, and the less the chloride in the urine, so much the worse is the prognosis.

2. *Pleurisy.*—Albumen does not appear so frequently, even when the chloride is much diminished. In the period of absorption it sometimes occurs, and is attended with carbonate and hydrothionate of ammonia.

3. *Acute Liver-Affections.*—In chronic or subacute inflammations, where the chloride of the urine is diminished, albumen appears as in pneumonia.

4. *Pericarditis* and *Endocarditis.*—In the first case albumen sometimes occurs; in the last, very seldom even when the chloride is much diminished.

5. *Peritonitis.*—Albumen is frequently found, and continues sometimes long after the customary amount of chloride has reappeared, and morbus Brightii is then, perhaps, left.

6. *Metritis* and *Eclampsia Puerperalis.*—As in peritonitis.

7. *Cholera.*—More or less albumen.—*Prov. Jour, from Archiv. für Pathol. Chem.*, Band i. Heft 8.

Hints for the Treatment of Hydrophobia. By Dr. MARSHALL HALL.—Many years ago I had the opportunity of watching the course of a case of hydrophobia. It occurred in a little boy; and I scarcely left the room during the eight-and-forty hours that he survived. But I need not detail the series of symptoms which occurred, and which I have described elsewhere, on the present occasion.

It has appeared to me that there are *three* modes of death in this disease:—1. Sudden death from asphyxia. 2. Sudden death from secondary asphyxia. 3. Sudden death (for in all the cases I think the death is sudden and unexpected at the precise moment at which it occurs) from nervous exhaustion.

Either of these modes of dissolution would be averted by the timely institution of tracheotomy. Indeed, if this measure were adopted, the frightful seizures which occur from trying to take liquids would be obviated. These seizures consist in fearful attacks of laryngismus, and of convulsions of the neck and pharynx, but chiefly of laryngismus, with threatening of instant suffocation. These seizures would be disarmed of their force and terror by tracheotomy.

Tracheotomy thus obviating the *effects of laryngismus*—1. The sudden death from asphyxia, the immediate result of asphyxia, could not occur; and 2. The sudden death from secondary asphyxia, the more remote result of many attacks of laryngismus, could not occur!

There remains the sudden death from exhaustion. It is a question whether this would occur necessarily from the poison of hydrophobia. Why should it occur *necessarily* from this poison? No reason can be given for this; and we are not to be misled into a conclusion unsupported by facts, since, though all cases of hydrophobia have proved fatal, they have proved fatal by a mode by which they would not occur if tracheotomy were performed.

Could any measures be adopted to check the violence of the spasm,—

laryngismus and its effects being obviated,—such as the hydrocyanic acid, and so to prevent the subsequent exhaustion? Or could any remedies be adopted to remove this exhaustion more directly, as wine or cinchona?

These hints I throw out for the consideration of my professional brethren, in the *hope* of *good*.—*Lancet.*

Treatment of Diabetes by Rennet.—Dr. Gray, of Glasgow, has lately treated a case of this disease, of at last twelve months' standing, by means of rennet, as prepared for the dairy, in doses of a teaspoonful three times of a day, in which dietetic treatment had been of only partial benefit, and various medicines of little use. He was led to give it from the action of rennet out of the body in converting sugar into lactic acid, which, according to Liebig, is one of the principles of the organic world, which can support respiration by being oxidated in the lungs; while sugar cannot be oxidated by them, and is therefore thrown off as excrementitial by the kidneys.—*N. Y. Med. Times*, Feb. 1853.

Permanganate of Potash in Diabetes.—A gentleman, upwards of 60, residing in the country, had for several months been suffering from confirmed diabetus mellitus when I first saw him, two years and a half ago. In the course of the twenty-four hours he passed from ten to twelve pints of urine, the specific gravity of which was 1.035 in the morning, and 1.040 in the evening. The patient was greatly emaciated, and he suffered severely from constant pains in the back and thighs, and from increasing debility. After he had perseveringly tried various remedies for nine or ten months, without deriving any benefit, I began, in August, 1850, to give him the permanganate of potash in solution, in doses of two grains, which were afterwards increased to three grains, three times a day. In the course of a few days a visible improvement took place; he felt better; the quantity of urine began to diminish, and the thirst became less troublesome. These favorable symptoms were soon followed by some return of appetite, and a gradual increase of strength. This amendment went on without interruption; the medicine was continued for three months, until the following November, when all medical treatment was discontinued, as the patient felt quite well, and the urine was reduced to its natural amount. A remarkable fact must, however, be mentioned, that at that time, notwithstanding the restoration of the general health, the urine still contained a considerable quantity of sugar. I am not aware whether this state still exists, but the patient's report to me a few days since ran thus: "I pass less than a pint of urine during the night, somewhat more during the day; the pains are gone, and I can walk a fair distance without fatigue." The dose of permanganate of potash which I have generally found to agree best with the stomach, is from one to three grains in solution, and it should be given in three or four tablespoonfuls of water three times a day, shortly before meals.—*Mr. George Sampson in Lancet.*

Phosphate of Lime in its Relation to the Nutrition of Animals, and the Mortality of Children.—Dr. Mourier addressed a memoir on this subject to the French Academy of Sciences, in July last, in which he states that the principal object of phosphate of lime in the system is not, as is commonly supposed, the formation and nourishment of the bones; but that its more special action is to produce and keep up vital irritability, and that it is found in animals in a definite quality, but varying according to their temperature, youth and vital activity. He says that in cities especially, the fœtus and infant seldom obtain the quantity necessary for their developement and existence; hence, this is evidently one of the causes of the very great mortality of children, especially in cities.—*Archives Génér.*, Sept. 1852.

Impending Death by Chloroform: Resuscitation by raising the Epiglottis, and direct Insufflation.—One of M. Ricord's pupils has just addressed a letter to this surgeon, in *L'Union Médicale*, wherein he states that he succeeded in rescuing from the grave a patient of his (who was being asphyxiated with chloroform,) by following M. Ricord's plan of resuscitation. The lady was having some verrucæ removed from the vulva, &c., and had been narcotized with the handkerchief and pledget of lint impregnated with chloroform within it. She was rather hysterical, and had had a fit when under the influence of chloroform some time previously. In this instance, narcotism was obtained after seven minutes' inhalation, and the handkerchief was removed from the mouth from time to time. After the first verrucæ were excised, sensibility returned; chloroform was given again, and in four minutes the whole operation was finished, but the patient was pronounced pulseless, and the ear applied to the chest could perceive no cardiac sounds. The operator, in great alarm, passed his finger into the posterior part of the patient's mouth, and found the epiglottis covering the entrance of the larynx. By pulling the tongue forward, and pressing the base of the epiglottis, the larynx was freed, and the young surgeon then applied his mouth upon the patient's and vigorously insufflated the lungs, whilst one of the assistants (there had been two all along) pressed down the parietes of the thorax. This was repeated twice for five minutes at a time; and the patient, who a few moments before, was a mere corpse, gradually recovered, and has done well.—*Lancet.*

The Solution of Urinary Calculi in Dilute Saline Solutions, at the Temperature of the Body, by the aid of Electricity. By H. Bence Jones, M. D., F. R. S., Physician to St. George's Hospital.—This paper contained the record of a number of experiments made to determine whether, out of the body, urinary calculi could be dissolved by placing them in dilute solutions of nitrate of potash and other salts, and then decomposing the solution in contact with the calculus by means of the galvanic battery. The urinary calculus was carefully dried and weighed, then fixed between the poles of a galvanic battery, after which it was immersed in a solution of nitre, and at the end of the experiment it was re-dried and re-weighed. The loss of weight gave the effect

which was produced. The different calculi which had been used were also exhibited, showing the different degrees in which the various kinds of urinary calculi are dissolved when submitted to this treatment. The conclusions at which the author arrived, may be thus stated: In a solution of nitre containing 20 grains to the ounce, kept at the temperature of the body, uric acid calculi can be dissolved by the aid of electricity, at the rate of from 2 to 9 grains an hour. The solution takes place at the alkaline or negative pole. In the same time, and under the same circumstances, phosphatic calculi can be dissolved at the rate of from 2 to 25 grains. The solution takes place at the acid or positive pole. Calculi, consisting of oxalate of lime, proved to be far less soluble, usually not more than half a grain an hour, and at most 2 grains being dissolved. At the conclusion of the reading of the paper, the author stated, that he had been engaged in making further experiments with a solution of nitrate of potash containing only 10 grains to the ounce; and he exhibited some large uric acid and phosphatic calculi, which had been partially dissolved by the decomposition of this solution at the surface of the calculi. He also showed a catheter or litholyte, made by Weiss, which fulfilled the conditions requisite in an instrument for effecting the solution of urinary calculi in the body. It resembled an ordinary lithotrite, but the blades were—1st, isolated so as to conduct the electricity to the surface of the stone when it had been caught; 2ndly, the external surfaces of the blades were guarded, so that in case they came in contact with the mucous membrane, no chemical action would be there set up; 3rdly, a double channel for the injection of the solution of nitre was formed inside the instrument. Lastly, the author stated, that although many difficulties would have doubtless to be overcome before he could lay the result of his experiments within the body before the Society, still they would only be mechanical difficulties. The principle, which consisted in setting up mechanical action at the spot where it was wanted, whilst elsewhere a dilute neutral solution was present, left nothing further to be desired; at least so far as the solution of uric and phosphatic calculi was concerned. At present, by the aid of the lithotrite, mechanical force is applied to the surface of the calculus, and the stone is passed in fragments. At some future time, by the aid of the litholyte, chemical force will be set up at the surface of the calculus, and it will be passed in solution, or as an impalpable precipitate. —*London Med. Times.*

SURGERY.

Iodine Injection of the Joints. By M. VELPEAU.—Amongst the affections of the joints, effusion into them is a very common affection, but is only serious as a symptom of the disease which accompanies it. When it occurs as a serous interarticular effusion, without any marked material lesion, recent hydrops articuli is easily cured by rest, bleeding, and topical applications, such as solutions containing muriate of ammonia or chloride of sodium. When the effusion resists these means, M. Velpeau

applies a large flying blister, repeated every fifteen days, and then uses frictions with mercurial or iodide of lead ointment (the latter being preferable to the iodide of potash,) aided by compression, the administration of calomel in small doses, and especially rest. There is another remedy now used—namely, the injection of tincture of iodine. M. Velpeau has only tried it twice this year; but from these two cases, it is plain that the injection thus used is neither very painful nor dangerous, and that when thus cured, the joint is not anchylosed. In one very bad case particularly, the injection was not more painful than when used for the cure of hydrocele, and succeeded where the other means referred to had failed. It is necessary that the treatment by iodine injection should be made more generally known, as it is not usually practised. The two points which deter surgeons from using it are, the fear of throwing an irritating fluid into a large joint, and of anchylosis taking place in case of success.

Now, both these dangers are imaginary. There is no previous incision, but a simple puncture made. Since 1839, M. Velpeau has used this plan twenty-five times, M. Bonnet perhaps as often, so that with cases of the same kind, related by Berard, and since by M. Jobert, Malgaigne, and other surgeons, there are more than one hundred cases of these joints having been punctured and treated by the iodine injection, and none of the patients have had any unfavorable symptom. The swelling, with slight redness, which appears after the operation, only shows that a natural process is going on, such as takes place in a hydrocele, and is resolved without the application of leeches, &c.

As to the danger of anchylosis, it is equally imaginary. M. Velpeau has seen these patients long after the operation, and in all the movements of the joints were preserved. It is, in fact, in these cases, as in hydrocele, the cure can be effected without the obliteration of the serous sac; or if adhesions do take place, they yield after a time, and the function of the joint is restored, so that this is no serious objection; and, as on the other hand, there is complete cure in one-half the cases, and very marked amelioration in the other, it is to be concluded that the iodine injection, under such circumstances, when as yet there is no induration, is suitable, and the more so, as its use does not prevent that of other accessory means of cure.—*Dublin Med. Press, from Presse Médicale de Belge.*

Dislocation of the os Humeri upon the Dorsum Scapulæ, reduced after the expiration of five weeks.—Prof. Paul F. Eve, of the Nashville University, reports a case of this kind in the January number of the Nashville Journal of Medicine and Surgery.

Iodide of Sodium in Constitutional Syphilis.—Dr. Gamberini, of Bologna, has written a paper on the use of iodide of sodium in the treatment of constitutional syphilis, which he concludes with the following resumé:

1. Soda being a very common ingredient in our organism, the iodide of its base appears best suited to the human system.
2. The taste of the iodide of sodium is much less disagreeable than that of iodide of potassium.
3. It is less likely to occasion iodism.
4. It is better borne than the potassium salt; and in consequence of this, its dose can be almost daily increased, and it thus becomes a more efficient remedy.
5. It has sometimes succeeded, when the iodide of potassium had failed.
6. We may commence by giving daily, in three equal doses, a scruple of the salt dissolved in three ounces of distilled water, increasing the strength of the solution every two or three days by six grains. More than two drachms a day are thus sometimes taken without inconvenience.
7. The iodide of sodium is admirably adapted to the cases in which the corresponding salt of potassium is indicated.
8. The iodide of sodium is the best substitute for mercury.—*Dublin Quart. Journal*, Nov. 1852.

Case of Dislocation of the Eye. By WILLIAM JAMESON, M. D., F. R. S., Surgeon to Mercer's Hospital.—Dr. Jameson detailed before the Surgical Society of Ireland, Dec. 4th, 1852, a case of dislocation of the eye which had lately come under his observation in Mercer's Hospital:—Peter Nowlan, ætat. 30, a powerfully able and muscular man, a corn porter, was admitted into Mercer's Hospital on the 3d of November, at half past twelve at night. His wife informed me that he came home that evening at ten o'clock in a most intoxicated condition, and while staggering about his room, struck his right eye against a small iron hook or nail that was in a dresser, which entered at the outer angle of the upper eyelid of that side, and when she went to his assistance discovered his eye protruded from its socket. She was most anxious to remove him at once to hospital, but could not succeed in prevailing on him to go until half past twelve at night, when in a few minutes after this I saw him.

He was very boisterous and unruly, had a large check apron held close up to his eye, which he kept constantly rubbing and pressing against it. On its being removed, he presented a most peculiar, and I might add, frightful appearance. There was the right eye protruded out of the orbit, firmly fixed and immoveable, staring, elastic to the touch, and devoid of all power of vision. The cornea was dry, cloudy, and rather opaque, pupil moderately contracted, and uninfluenced by the light of a candle. There was no extravasation of blood, nor was there any vascularity of the conjunctiva, although its reflection from the upper lid on the globe of the eye was partially torn through. The inferior margin of the upper lid was not visible, as it was placed behind the globe and spasmodically closed.

With difficulty I could get him restrained, as he was such a powerful man, but having accomplished it, I then, with two fingers of my left

hand, elevated the upper lid, at the same time, with the finger and thumb of my right, pressed the ball of the eye and immediately it was drawn back with a distinct snap, and the lids closed over its anterior surface. I now, for the first time, observed the small wound before alluded to at the outer angle of the upper lid, but could not ascertain or form any conjecture at the time what amount of injury he might otherwise have sustained. I therefore had him conveyed to bed, and ordered cold to be assiduously applied to the part for the remainder of the night.

4th. The following morning, at visiting hour, we found him sober, but recollecting little of what had occurred. His eyelids were a little swollen; there was some slight vascularity of the conjunctiva; the *cornea was clear, shining*, and moist, and the tears ran down the cheek; he could distinguish the daylight; complained of pain in the head, and a deep pain in the globe of the eye, with full pulse. He was ordered to have ℥xvi. of blood taken from his arm, bowels to be freely opened, and the cold to be continued to the part.

5th. Lids less tumid; pain and vascularity of conjunctiva almost gone; complains of the sensation as if gravel were between the lids; vision improved, but sees objects imperfectly, as through a thick haze. Ordered the tart. ant. mist., low diet, and the cold application to be continued.

6th. All pain gone; conjunctival vascularity less; sensation as if gravel were beneath the lids gone; vision nearly restored; has complete power over all the motions of the eye. Continue all.

7th. Convalescent; no suffusion; no pain; vision complete. 9th. Discharged cured.

The foregoing case Dr. Jameson considered to be one of great interest, when we reflect on the novelty and nature of the accident, and the mode of its being inflicted. In the first instance, the great escape the orbital plate of the frontal bone had of being pierced, and consequent injury to the anterior lobe of the brain. Again, the length of time the cornea was left uncovered by the palpebræ, being two hours and a half, and all that time coarsely rubbed by the apron. The great state of tension the optic nerve must have been kept in without permanent loss of vision. The escape the muscular attachments had of being torn from their origins, which evidently must have been the case from the subsequent perfect control retained over all the motions of the eye, as soon as the very slight amount of inflammation produced by the accident was removed. The powerful contraction of the orbicularis muscle behind the globe, with the complete restoration of vision. And finally, the trifling amount of constitutional disturbance and local inflammation that followed what appeared to be at first sight so very grave an accident to so very delicate an organ. These, he said, are points which add considerably to the interest of the case.

Dr. Jacob said the Society were greatly indebted to Dr. Jameson for the very interesting case he had just brought under their notice. As far as he could recollect, one of exactly the same kind was scarcely to be found on record. He thought it was a case which ought not to be dismissed from their consideration, without some suggestion to account for

the occurrence of such an accident. He would solve the matter in this manner: Some persons were born with very large eyes and shallow orbits, and often, while examining the eyes of such persons, he found that by pressing the lids above and below, he could with ease get a view of the back of the eye. It was not that he merely saw one-half of the eye, but by a little manipulation of the eyelids, in persons with a shallow orbit and a large eyeball, he could obtain a view of the posterior part of the ball. Now, if by means of violence, the lids were tucked in above and below, they would grip the back of the eye and produce a downright protrusion of the organ from the orbit. He could not conceive any other way in which the accident could happen, because, as they might recollect, neither the muscles nor the optic nerve were torn in the case described by Dr. Jameson.

Dr. Jameson—The circumstance of the eye being drawn back with a distinct snap, shows that the muscles were at least on the stretch.

Dr. Jacobs—Yes, that is quite evident.—*Dublin Med. Press.*

ANATOMY AND PHYSIOLOGY.

The Laws regulating the Bodily Temperature and the Frequency of the Pulse. By R. LICHTENFELS and R. FROHLICH.—The authors have made a most careful series of experiments on themselves. Each experimenter is twenty-two years of age; the pulse of one of them is normally 71 per minute, that of the other 88; the normal temperature of each is 98·434. During the course of the experiments, they rose shortly before 7 A. M., took coffee between 7 and 8, had dinner at 2, and evening-coffee between 7 and 8.

1. *Daily rate of pulse and temperature.*—The influence of the period of the day, *per se*, was very trifling, but both pulse and temperature were greatly affected by food. Before the morning-coffee, the pulse was lowest; by the end of the first hour after coffee it rose, on an average of many observations, nearly 8 beats per minute; it was slightly less rapid at the end of the next hour; at the end of the third hour it was only 3·3 beats; and at the end of the fourth, 2·77 beats over the original number. The pulse did not sink to the number noted before coffee, till six hours had elapsed. The mid-day meal raised the pulse again, and this occurred apparently sooner after protein than after starchy food, but to a less extent. After the evening coffee, the pulse, which had fallen, again rose, but to a less extent, and its declension occurred more rapidly.

The temperature of the body was affected in a similar way by food, but the augmentation occurred later than the rising of the pulse; so that the temperature was often at its maximum when the pulse had fallen considerably towards the point from which it had risen. The average amount of increase is about $\frac{1}{5}$ of Fah. The greatest average range of the thermometer in the course of the day (between 7 A. M. and 10 P. M.) was rather less than a degree of Fah.

2. *Influence of customary liquid.*—The experiments were performed in the afternoon; each lasted 100 minutes, and the greatest tranquillity

of body was preserved. After *beer*, the pulse sank 6 or 7 beats in from 10 to 15 minutes; in 30 minutes it regained its former frequency; much before this time, the subjective feelings of slight incipient intoxication were felt. In about two hours, the pulse was heightened nearly double as much as it had been depressed. The temperature, after the use of beer, fell about one-third of a degree of Fah. After *wine*, the pulse at first fell in the same way, and then rose greatly; the temperature fell about half a degree of Fah. The same occurred with alcohol, but afterwards the temperature rose about a quarter or half a degree of Fah. Cold water lessened, at first, the number of the pulse, and lowered the temperature. In 15 minutes both returned to their former amount. Coffee, as already said, raised the pulse, but more in the morning than in the evening.

3. *Influence of fasting.*—Fasting for from 20 to 21 hours lowered both pulse and temperature. At the end, the pulse was from 12 to 16 per minute; the temperature as much as 1·8° Fah., under the normal. The curious observation (made also by Davy and Gierse) was noted, that at the period of customary meal-times both pulse and temperature slightly rose.

4. *Influence of muscular movements.*—Various experiments were tried with different kinds of movements. 1. A ten pound weight was allowed to hang from the arm for five minutes, the body being tranquil; the pulse first fell in frequency, then rose; its greatest frequency was after the termination of the experiment. When the weight was on the left arm, the rise was nearly double that which occurred when it was on the right arm. 2. A weight of one pound was held out horizontally; the pulse rose and fell remarkably several times. 3. A weight of two pounds was rapidly swung round and round with one arm, while the other was placed on a table, that the pulse might be counted. This exercise produced the greatest effect on the pulse, raising it sometimes from 30 to 50 beats. 4. Long-continued moderate exercise, carried on to fatigue, raised the pulse greatly for some considerable time, but never produced the enormous rise noted in the previous kind (3) of muscular exertion.

5. *Influence of narcotic poisons.*—*Belladonna* and *atropine* at first diminished the frequency of the pulse (16 to 20 beats), but after a variable time (50 to 117 minutes,) the pulse again rose (12 to 30 beats.) The smaller doses produced greater primary sinking than the large, but required much longer time to do so; on the contrary, the larger doses produced much greater secondary rising; that is to say, the maximum sinking-point is inversely, and the maximum rising-point is directly, proportioned to the amount of the drug. It might be said that small doses depress, larger excite, the pulse. The temperature was diminished in all cases. *Opium*, especially in small doses, caused rising of the pulse, but afterwards there was great sinking, and the temperature diminished. The *Cannabis Indica* produced many periods of rising and falling; the temperature rose for about four hours, and to as great a degree as ·7° or 1° Fah. *Chloroform* and *ether*, if not pushed to too

deep narcotism, raised both temperature and pulse.—*British and Foreign Medico-Chirurgical Review.*

The Comparative Anatomy and Physiology of the Salivary Glands in Man and other Vertebrate Animals. By M. C. L. BERNARD.—Anatomy shows the group of salivary glands as an homogeneous apparatus, of which the different parts are identical in structure. Physiological analysis, on the other hand, teaches that the secreted products are of different composition. In spite of the mixture of the different kinds of saliva in the mouth, their functions remain distinct. The characteristic of the parotid is to secrete for mastication; that of the submaxillary for taste; that of the sublingual and buccal for deglutition. We cannot expect to find in birds the homogeneous types of the parotid and submaxillary glands, because the functions connected with these two organs, namely, mastication and gustation (taste,) are wanting. The viscid and glairy secretion which flows from their glands has nothing in common with the parotid and submaxillary fluids of mammalia, but it is identical with that furnished by the sublingual and buccal glands. In mammalia, which masticate hard and dry articles of food, the parotid attains its extreme development; in those which, as the phoca, live in water, and feed off moist substances, this gland is atrophied, or absent altogether. The other glands retain their size according to the necessity of the functions over which they preside.—*L' Union Medicale*, 1852.

Chemical Composition of the Uterine Fibres in Pregnancy. By SIEGMUND.—The point of interest in this communication is, that kreatin was obtained from the tissue of the gravid uterus. Formic and acetic acids were also present.—*British and Foreign Medico-Chirurgical Review*, from *Wurzburg Gesell. Verhandl.*